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FAR EASTERN ANTIQUITIES

(Östasiatiska Samlingarna)

STOCKHOLM



Bulletin N:o 15

Stockholm 1943

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of
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**RESEARCHES INTO THE PREHISTORY
OF THE CHINESE**

BY

J. G. ANDERSSON

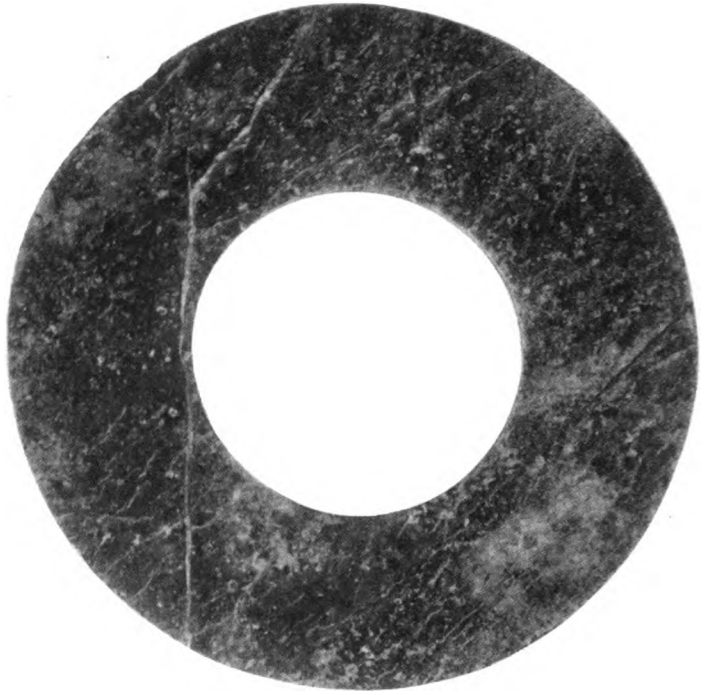
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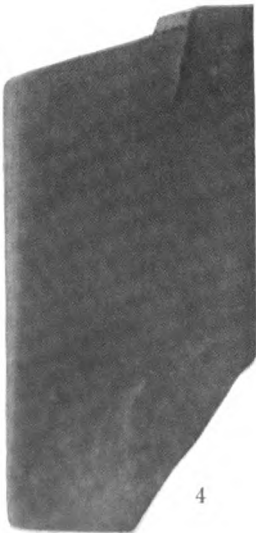
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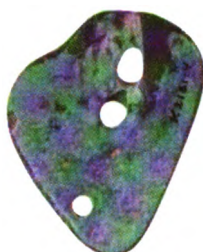
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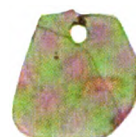
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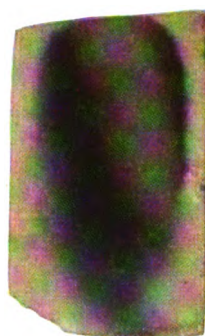
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DEDICATION.

The preparation of this volume had a twofold purpose.

When in 1939 I went into retirement, large parts of the prehistoric material collected by me in China still remained undescribed. Upon the suggestion of my successor Professor Bernhard Karlgren, the Swedish China Research Committee granted me economic facilities for continuing the study of the materials from the prehistoric sites of Honan and Kansu. Thanks to these facilities, the description of the Pu Chao Chai site has been completed, the monograph on the largest of all these sites, Yang Shao Tsun, is far advanced, as is also the description of the very important Chu Chia Chai site of Kansu. The description of the materials from a number of smaller sites in Shansi, Shensi and Kansu are also completed. However, there still remains a large number of important sites which have not been touched so far. For reasons of health I feel that I shall be forced to leave parts of this vast material to be studied and described by younger scientists.

On the other hand, it was realized by me, by Professor Karlgren and by the Research Committee that I was personally in possession of much knowledge of these sites and the materials collected in them, knowledge which was not all recorded in writing, and which would be lost with me provided I did not prepare a condensed record of this personal acquaintance with data collected in the field and during many years spent in studying the great mass of material. This was the origin of the plan for these »Researches into the Prehistory of the Chinese«, which is herewith offered to the criticism of sinologues and archaeologists.

This volume has also another aim. The extensive collecting campaign which I was privileged to carry out in China within the domains of vertebrate palaeontology and archaeology was made possible only thanks to the remarkable economic organization built up in Sweden by a man to whom I have been bound by forty years of unfailing friendship. This man, Dr. Axel Lagrelius, celebrates this year his eightieth birthday and I wish in the same year to lay down my scientific work, dedicating to him this the last of my scientific papers.

My first meeting with Axel Lagrelius and my forty years of cooperation with him may deserve a brief record in this place.

In the year 1898 I went for the first time to the polar regions as geological assistant to Professor Nathorst on his expedition to Spitzbergen and to King Char-

les' Land. The following year I undertook with two student companions a summer trip to Bear Island in the Arctic Ocean half way between northernmost Norway and Spitzbergen.

In 1901 Dr Otto Nordenskjöld prepared to leave Sweden with his Antarctic expedition on board the »Antarctic» and he kindly offered me the opportunity of participating as second in command of the ship expedition for the time when he was going to winter on the Antarctic continent. It was during the busy months before the departure for the South that I met Mr Axel Lagrelius for the first time.

The Swedish Antarctic Expedition with a scientific staff of very young men encountered considerable criticism from the more aged Swedish polar explorers of that time. In particular, it was said that we were too poorly equipped from a technical point of view, and on that account our leader was refused by these authorities the necessary support for his petition for a Government grant.

As head of the Printing Office of the General Staff Mr Lagrelius was in close touch with the leaders of geographical research, and it struck him that in the official obstruction against the Antarctic expedition there was a certain inconsistency. There was no criticism against the scientific ability of the members of the staff, who were, however, denied the means for making good the deficiencies of the technical equipment. It was in this situation that Mr Lagrelius stepped in, unostentatiously but with such good effect that he persuaded two private donors to make good the most crying needs for funds to assist our enterprise, just about to start.

During our second Antarctic summer 1902—03 the ice conditions were exceptionally severe, and, while trying to force a passage to the wintering station on Snow Hill, the ship was crushed and the expedition, divided into three parties, was forced to face a second winter under very severe hardships. Mr Lagrelius took a very active part in the work for our final rescue and the saving of the precious collections.

In the early part of 1906 I was asked to act as General Secretary to the International Geological Congress to meet in Stockholm in 1910, and in the autumn of 1906 I was appointed director of the Geological Survey of Sweden. Upon the suggestion of Professor A. G. Högbom it was decided to organize an international enquiry into the iron-ore resources of the world. This attempt to give to the Geological Congresses a lasting practical value was hailed with ready support by our colleagues all over the world, and exhaustive reports on practically all countries of the world accumulated in our hands in good time to be presented at the meeting of the Congress. There still remained the question of finding the means to get the bulky reports with all their maps printed in a dignified form worthy of their intrinsic value and the international nature of the enterprise. The Congress Committee could not shoulder the financial responsibility for such an enterprise as its monetary resources were taxed to the utmost for other purposes. In this situation Mr. Lagrelius again stepped in and took upon his shoulders the

responsibility for the printing expenses. The splendid publication »The Iron-ore Resources of the World» in two 4:0 volumes with a folio atlas issued by the Printing Office of the General Staff hardly became the market success that I hoped it would be. But it contributed a great deal towards bringing international fame to the printing office headed by Mr. Lagrelius.

The initiative taken by our Congress Committee proved to be of lasting value. For several decades this publication remained the main source of information on the world supply of one of the fundamental mineral base materials. Moreover, the Swedish publication of 1910 became the model for similar enquiries undertaken by subsequent congresses. Thus the Congress in Toronto in 1913 published in three volumes and with an atlas »The Coal Resources of the World». Then followed in the wake of the first world war a long hiatus in the meetings of the Geological Congresses. The Fourteenth Congress, which met in Madrid in 1926, published two enquiries »Les reserves mondiales en pyrites» and »Les reserves mondiales en phosphate». The congress held in Pretoria in 1930 published »The Gold Resources of the World» and the Congress in Washington in 1935 »Copper Resources of the World».

The commander of the »Antarctic» during our South Polar expedition 1901—04, Captain C. A. Larsen, a man of rare practical genius, established soon after our return the first Antarctic whaling station, and out of this beginning developed a gigantic whaling industry in the South Polar seas. The existence of whaling stations on the coasts of Graham Land, where we had worked 1902—03, inspired the idea of planning a new Swedish Antarctic enterprise. During the time that elapsed between our expedition and this new scheme of 1914 the political status of the Antarctic regions had undergone a radical change caused by the new flourishing whaling industry. Large tracts which were previously no man's land had now been placed under British jurisdiction, and it was necessary to ask the British authorities for permission to work in the Graham Land area. Not only was this permission readily granted, but the scientific authorities in London were found willing to cooperate in a joint research enterprise. In order to facilitate this British-Swedish cooperation the Swedish Riksdag voted at the beginning of 1914 a grant of 135.000 crowns, but the planned expedition was frustrated by the outbreak of the first world war.

In the early part of the same year, 1914, I was invited by the Chinese Government to accept a post as mining adviser. During the first years nearly all my time was devoted to the examination of mineral deposits, mostly coal beds and iron ores. But the civil warfare, which during those years was almost incessantly ravaging different parts of China, combined with the increasing scarcity of funds, rendered my technical activities well-nigh impossible.

Under these circumstances I approached Dr. V. K. Ting, then Director of the Geological Survey, with a scheme for collecting fossils which should be divided between the Geological Survey of China and various Swedish museums.

When this scheme for collecting operations within the domain of natural history was first developed in 1917 I adressed myself to my trusted and able friend Mr. Lagrelius, who most willingly promised to try to raise the funds for my planned collecting campaign.

In order to secure a stable organisation for the far-sighted enterprise Mr. Lagrelius invited Admiral Louis Palander of Vega, to become the chairman of a Swedish China Research Committee for the purpose of supporting my collecting activities. Admiral Palander had been chairman of The Antarctic Committee of 1914, and thanks to the efforts of the Admiral and of Mr. Lagrelius the Swedish Riksdag consented to transfer 90.000 crowns of the Antarctic funds to the new collecting campaign in China.

By far the largest part of the 2.285.000 crowns which Mr. Lagrelius had brought together for supporting my collecting work up to the time of my retirement in 1939 he obtained from private donors whom he succeeded in making interested in our work. Mr. Lagrelius was himself one of our earliest and most important donors. It would be impossible to name here all the men who sided with him in supporting the collecting work in China. But I am specially anxious that the names Henrik Westman, Gottfrid Vennersten and Richard Hultmark should not be forgotten in this connection. Not only were their donations very considerable, but they were given in such a charming way that we were entitled to count these donors among our sincerest friends. Alas, they have all left us, but Richard Hultmark's brother, Dr Emil Hultmark, one of our most important donors, is still active as a promotor of art research.

The Swedish China Research Committee possessed upon its formation a third member, Dr. G. Andersson, Professor of economic geography at the Commercial University College of Stockholm and formerly my companion on the Spitzbergen expedition of 1898. He was the very active secretary of the Committee until his deeply lamented death in 1928.

When Admiral Palander passed away in 1921, H. R. H. the Crown Prince Gustaf Adolf of Sweden graciously consented to accept the position of chairman of the Committee. Years before that date the Crown Prince had with painstaking accuracy and perseverance devoted much of his spare time to a careful study of Chinese art and culture. He had built up a library of his own on Far Eastern Art, and most of the European scholars in that line of research were his personal friends. It goes without saying that his acceptance of the chairmanship of the Committee had a far-reaching influence on the promotion of its activities. During the hectic years 1921—24, when I unravelled the prehistoric sites of Northern China, Mr. Lagrelius had in the Crown Prince a ready and resourceful helper in the furtherance of our activities, and in 1926 H. R. H. graciously invited Mr. Lagrelius and me to visit with him the classical sites of Chinese art and culture. Still to this day these two men are together active in promoting the interests of the Stockholm Museum of Far Eastern Antiquities.

After the death of Professor G. Andersson in 1928 the post of secretary to the Committee remained for some time vacant, until in the following year Dr. B. Karlgren, then Professor of Far Eastern languages and cultures at the University of Gothenburg, was elected third member of the Committee. Thanks to the ever-growing close association of this eminent scholar with the Museum of Far Eastern Antiquities, finally as my successor from 1939, this museum has become a unique centre for the unravelling of ancient languages and cultures of the Far East.

When in the spring of 1925 I reported that I was coming home that summer with a vast hoard of prehistoric material forming the joint property of China and Sweden, Dr. Lagrelius at once approached Mr. S. Curman, The King's Custodian of Antiquities, and by their concerted action such preparations were made that on my arrival I found ready furnished provisional store-rooms for these collections.

When a year later these temporary quarters had to be abandoned, The Crown Prince and Mr. Lagrelius in cooperation were most actively instrumental in the efforts which finally gave the collections a more permanent and very comfortable home, the State Museum of Far Eastern Antiquities being established in the uppermost story of the then new building of the Commercial University College of Stockholm.

During the first years, 1918—21, of our collecting campaign in China our activities were centred principally upon fossil mammals, and large collections of this kind were sent to Professor Wiman in Upsala, who with untiring energy and admirable ability provisionally housed them and prepared them for scientific study. Funds for paying rent for the very scattered temporary laboratories, for salaries to technical assistants and to a foreign palaeontologist, Dr. O. Zdansky from Vienna, were readily forthcoming from Mr. Lagrelius' hands. But the question of a permanent home for these bulky fossil materials became more urgent as their monographic preparation proceeded. It was principally thanks to the combined efforts of Mr. Lagrelius and our then Minister in China and Japan, Mr. O. Ewerlöf, that a State Museum of Zoopalaeontology was built in Upsala to house the rich treasures there brought together under the leadership of Professor Wiman. In recognition of the exceptional help rendered by Mr. Lagrelius to Professor Wiman's research work, the University of Upsala in 1927 created him a Doctor of Science *honoris causa*.

In connection with his participation in the Royal Party to China in 1926 Dr. Lagrelius raised considerable funds which enabled us greatly to enrich the material of our Museum, especially with objects dating from early dynasties. Among these purchases those from the famous collection of Lo Chen Yü and the »Huai» bronzes in the possession of the noted Swedish collector O. Karlbeck are specially noteworthy. Large series of small bronze objects from the Suiyuan area gave us the first clear insight into the remarkable animal-style bronzes now named Ordos bronzes.

During the warfare in the lower Yangtze valley in 1927 Mr. Karlbeck was driven away from his position as sectional engineer at the Tientsin — Pukow railway and

returned to Sweden, where he found it difficult to obtain a new position within his technical profession. Dr. Lagrelius then raised funds which enabled us to send Karlbeck out to China on a collecting expedition, which yielded very good results. After his return from this trip, The Crown Prince and Dr. Lagrelius together with a number of collectors formed »the Karlbeck Syndicate», which sent Mr. Karlbeck on a new collecting expedition to China. This first syndicate proved so successful that a new one was formed in which such famous museums as The British Museum, the Statlichen Museen of Berlin and the Louvre participated. From these syndicate expeditions a certain share of the objects of art went to our museum.

Even in quite recent years the Crown Prince and Dr. Lagrelius have cooperated in favouring the activities of this museum.

In addressing this volume to Dr. Axel Lagrelius I am anxious also to acknowledge my personal indebtedness to him. During all my travellings and varied occupations he was always ready to provide the necessary funds, but he gave much more, namely the wise and excellently balanced counsel emanating from a rarely practical genius.

During my many years of absence from Sweden he extended his friendly care to all the members of my family, and the assurance that my home affairs rested securely in his able hands alone gave me the peace to devote all my interest to the hunting of dragon bones and buried cultures.

Dear Dr. Lagrelius, the fact of your allowing me to dedicate this volume to you has bestowed on me the special favour of closing my scientific career in your able and trusted company!

2.

PREFACE.

In 1914 the author of this volume accepted a position in Peking as Mining Adviser to the Chinese Government. During the first years my work was purely technical, devoted to the examination of coal, iron ore and other mineral deposits. At that time I had no expectation of taking up purely scientific research in China.

In the early part of 1916 I spent some weeks examining the copper deposits in S. Shansi. After having accomplished this task, I intended to return through Honan by the Lung—Hai railway. When crossing the Yellow river at Yüan Chü Hsien on the Shansi—Honan border, I noticed in the N. bank of the river, below the loess, a series of multicoloured clays and marls containing very numerous freshwater molluscs.

This find, of what later proved to be richly fossiliferous Eocene beds, diverted my interest into the search for vertebrate remains in the Cenozoic deposits of northern China. It was not very long before we had located the first deposits

containing the «dragon bones» of the Chinese pharmacopoeia, i. e. Pliocene mammals of the type described by Schlosser from material collected in the Chinese medicine shops.¹⁾

The first finds of this type were made in Honan, and I am deeply indebted to the Rev. Miss Maria Pettersson for her valuable assistance in helping me to locate deposits of the Hipparion fauna and fossil vertebrates of the loess. One of her Chinese assistants, Mr. Wang, was a native of the village Yang Shao Tsun in Mien Chih Hsien in Honan. He knew of a fossil skull obtained in the loess in the said village, and on the 8th Dec. 1918 I visited that village in Mr Wang's company. I obtained the skull and found some additional fragments of it *in situ* in the cave-dwelling where it had been dug out by a village man. On the same occasion we also visited at Lan Ko, near Yang Shao Tsun, a ravine section in the Pliocene clay where very fine mammal remains were excavated.

At that time we had also begun to take an interest in the remains of early Man, and a number of stone implements had been collected in Jehol by Mr. Chu of the staff of the Geological Survey. When, in the late fall of 1920, I sent my collector Liu to inquire for more dragon bones in the Yang Shao Tsun region, he was provided with a stone axe to be shown to the villagers in order to identify similar finds. When Liu returned to Peking in January 1921 he brought with him a remarkable material consisting of about six hundred stone implements of varied types, many of them very beautiful specimens. As all the stone utensils had been collected in the village of Yang Shao Tsun, it seemed very likely that here was a Neolithic site of considerable volume. When I visited that village in April of the same year, this suggestion was fully confirmed and a further rather startling discovery was made of beautiful painted pottery in the «ashy earth» containing the stone implements. This was the first find of a prehistoric village in China proper and at the same time the first indication of a cultural connection of Chinese prehistory with the rich aeneolithic cultures of the Near East. The Yang Shao village-site with its cemetery was surveyed by me in the late fall of 1921 in cooperation with Mr. P. L. Yuan, of the Geological Survey, and Dr. O. Zdansky.

During our stay at Yang Shao Tsun one of my Chinese collectors Chen discovered, 6 km. W from Yang Shao Tsun, the Pu Chao Chai site, which resembled Yang Shao Tsun in every feature except the total absence of painted pottery.

Between Yang Shao Tsun and Mien Chih city my men found sites at Hsi Chung Tsun and Yang Ho Tsun, likewise lacking in painted pottery. These sites were never visited by me, and our material from them is small.

Later on during the years 1921—22 my collectors Yao and Pai discovered at the Yellow River in Ho Yin Hsien near Cheng Chou a number of rich sites, Chi Kou Chai, Niu K'o Yü and Chin Wang Chai, revealing a very rich and beautiful painted pottery which seems to be somewhat more advanced than that of Yang Shao Tsun.

¹⁾ M. Schlosser, Die fossilen Säugethiere Chinas. Abh. Bayer. Akad. Wiss. 1903.

Here ended our finds in Honan. Most unfortunately I was never given the much longed-for opportunity to study and survey the rich Ho Yin sites.

In the spring of 1923 I started with my native collectors on an expedition to the distant northwest, Kansu and adjacent parts of Mongolia and Tibet. The pre-conceived plan for this journey was mainly to hunt for fossil mammal vertebrates and to trace the supposed connection of the Yang Shao painted pottery with the painted pottery cultures of the Near East. The first of our aims yielded very poor results, but the second was rewarded far beyond our wildest dreams. In the more than 50 sites located by us in that area we found represented not less than six prehistoric stages ranging from approximately 2500 B. C. to the centuries just preceding the dawn of the Han Empire. In venturing to date all these ceramic dynasties of Kansu as prehistoric and protohistoric I do so only because they cannot so far be ranged within the landmarks of early Chinese history.

With my return to Peking in October 1924, after eighteen months' work in the distant northwest, my main excavation activities in China had come to an end.

However, once more, for some days in November 1926, I was allowed to dig in the sites of the proto-Chinese. In connection with the visit to China of H. R. H. the Crown Prince of Sweden in the autumn of the said year, in cooperation with Professor E. T. Nyström I sent my collector Chuang to Shansi, where he was able to locate several prehistoric sites, some with and others without painted pottery, and on the occasion of the trip to Shansi undertaken by the Royal Party I was able to spend some days in the field. The material thus collected was of small volume, but it gave us some hints of the Yang Shao culture as it had developed in an area which was so far unknown to us.

In the following pages it will be my duty to record in their main characteristics these prehistoric and protohistoric stages.

The main aim of this volume is to trace the affinities of the sites studied by me. During the years preceding the present world war a prosperous school of young Chinese archaeologists working within the Department of History and Philology of the Academia Sinica in Nanking had made a number of very important prehistoric discoveries, specially in the provinces of Shantung and northern Honan. During my stay in Nanking in the early part of 1937, thanks to the courtesy of Dr Fu Ssu-nien and his associates, I was given the great favour of seeing these marvellous collections, especially the black pottery cultures in Shantung accumulated in the said Department. Alas, some few months after my visit the present terrible war commenced with the Japanese attack upon Chinese territory. For long years my friends in the Academia Sinica have been forced to suffer destruction and exile to the distant west. But one day peace will be re-established: the Chinese scientists will regain their lost territory and recommence their work. It is primarily for their guidance that I have compiled this summary of my work. I regret that only one of their monographs, that on «Cheng-tzu-yai», had appeared when the destruction came upon their country. Consequently it is only upon this material, small

when compared with the voluminous treasures later hoarded in the Academia Sinica, that I can base my comparison between Yang Shao Tsun—Pu Chao Chai and the Shantung black pottery culture.

For the rest I have been forced to limit the scope of my enquiry to the relationships within the cultures which I have studied. The more remote but fundamental problem of the relation of the Honan and Kansu sites with their magnificent painted pottery to the painted pottery groups of Anau, Tripolje, Cucuteni etc. I have to leave to my successor Professor Karlgren to solve.

3.

METHODS OF FIELD AND LABORATORY WORK.

In the preface has been told the story of how we discovered the first prehistoric site at Yang Shao Tsun, in Honan, as the result of an inquiry about the occurrence of stone implements among the country population of several provinces. As soon as we started, in the autumn of 1921, systematic excavations at Yang Shao Tsun, word reached us from other villages of the same district about the occurrence of similar sites, such as Pu Chao Chai and others.

Our survey of the large Yang Shao Tsun site was in many respects our most detailed and many-sided investigation of any prehistoric site found by us. My assistant Mr. P. L. Yuan carried out a most painstaking plane-table survey of the whole site on the scale 1: 4,000 with contour-lines of ten metres' equidistance. When it was realized during the progress of our work that the southern part of the site offered the clue to the topographical history of the site, I undertook an independent plane-table survey of this southern area on the scale 1: 2,000 with contour-lines of five metres' equidistance.

As we found that the road-section running approximately north-south through the central part of the site offered very clear stratigraphical evidence, specially with reference to the «pockets», I undertook a detailed survey of this 160-metre-long section on the scale 1: 200.

In the south-eastern part of the site we found a cemetery, which was excavated by Dr. O. Zdansky with the utmost care, the exact position of every object found being duly recorded. This burial excavation, recorded on the scale 1: 25, was measured with the aid of three coordinates, two horizontal and one vertical, giving in centimetres the depth of each object below the zero of the survey.

With the exception of the detailed work at Yang Shao Tsun all our other excavations in Honan were of the nature of a flying reconnaissance. I was never able to visit the very rich sites in Ho Yin Hsien, and for these important localities I have to rely solely upon the information given me by my collector Pai.

In the summer of 1921 I was sent by the Ministry of Agriculture and Commerce to survey the coal deposits in the vicinity of Chin Hsien in the southwestern part of Fengtien province. I there took advantage of the opportunity to make a reconnaissance survey of the caves existing in the Precambrian chert-banded limestone near Sha Kuo T'un railway station. Quite close to this place we found a small cave with a deposit full of interesting artifacts of prehistoric type. By stretching a horizontal tape just below the roof of the cave I managed to establish a base line for the survey, which remained intact during the whole excavation, allowing every object found to be recorded in its proper place, as shown by the plan and sections of Pl. II and III of my paper 'The cave-deposit at Sha Kuo T'un in Fengtien', *Palaeontologia Sinica*. Ser. D, Vol. 1, Fasc. 1, Peking 1923.

As very numerous human bones were found in this deposit under conditions requiring an expert survey, my friend Dr. Davidson Black kindly joined me and contributed with a most careful survey of the human skeletal remains, resulting in the conclusion that here had been found some kind of cult site possibly involving also the practice of cannibalism.

From May 1923 to October 1924 I worked with my Chinese assistants in Kansu in a very fruitful archaeological campaign, which brought to light about fifty prehistoric sites representing not less than six consecutive prehistoric stages. The great number of sites revealed through the preliminary reconnaissance carried out by my Chinese assistants forced me to make relatively hurried surveys of some of the most important sites, leaving it to my men to collect test samples of the numerous sites which I could not examine myself. It was my very good fortune to be able to take with me on this long expedition as well Mr. P. L. Yuan of the Geological Survey staff, who undertook a plane-table survey of the important Hsin Tien area on the scale 1: 5,000 with five-metre contour intervals. In the same area I surveyed the Hsin Tien A burial site on the scale 1: 1,500. Furthermore I made in Kansu plane-table surveys of a large number of sites, the Pan Shan area on the scale 1: 25,000, the Chu Chia Chai site 1: 10,000, the Ch'i Chia P'ing site 1: 8,000, the surroundings of the Shih Li P'u site 1: 6,000, the Shih Li P'u site 1: 1,000, the Lo Han T'ang W site 1: 5,000 and the Hui Tsui site 1: 5,000, the Sha Ching site 1: 2,500, and the San Chio Cheng walled-in place 1: 2,000.

As the number of sites was so large when compared with the small number of workers and the short time at our disposal, I was forced to concentrate my detailed surveying activities upon the burial places and individual graves. In the dwelling-site deposits my men were left to excavate in small parties, which were visited by me every other day. Only when special stratigraphical structures were found within these refuse deposits were those spots specially surveyed.

Of the burial sites the large Hsin Tien cemetery was surveyed on the scale 1: 1,500, the Chia Yao, and the Sha Ching S. cemeteries on the scale 1: 500. All

the individual graves were surveyed on the scale 1: 10 and prepared for publishing on the scale 1: 20.

In addition to the 16 burials excavated and surveyed by Zdansky at Yang Shao Tsun in Honan, we excavated in Kansu a large number of prehistoric graves of very varied ages (the number of graves, more than 120, cannot be exactly stated owing to the distorted condition of the Chu Chia Chai cemetery).

The printing of all the maps mentioned above, together with full topographical descriptions of the sites was far advanced during my stay in Nanking 1936—37. Then the war broke out, and probably all completed printed sections were destroyed during the siege and capture of Nanking.

Copies of some of the maps are included in the present volume, and the others will appear in the monographs.

In all our excavations carried out in search of fossil vertebrates as well as for archaeological purposes we were guided by the advice and instructions given by Dr.

Walter Granger of the Third Asiatic Expedition of the American Museum of Natural History. When he arrived in Peking in the early summer of 1921, my assistant Dr. Otto Zdansky had just begun his reconnaissance of the fossil vertebrate possibilities of N. China with an excavation at the small Chi Ku Shan deposit at Chou K'ou Tien near Peking. Dr. Granger accompanied me to see the progress of Zdansky's work. During this excursion — which inter alia led us to the discovery of the subsequently famous *Sinanthropus* site — Dr. Granger kindly made us familiar with the refined technique which had been developed by the palaeontologists of the American Museum. This technique later on proved to be the very best method of prehistoric excavation in the loess terrace sites of Northern China, and it therefore merits some mention here.

In addition to the spade and heavy pick necessary for the coarse excavation work, the American palaeontologists use

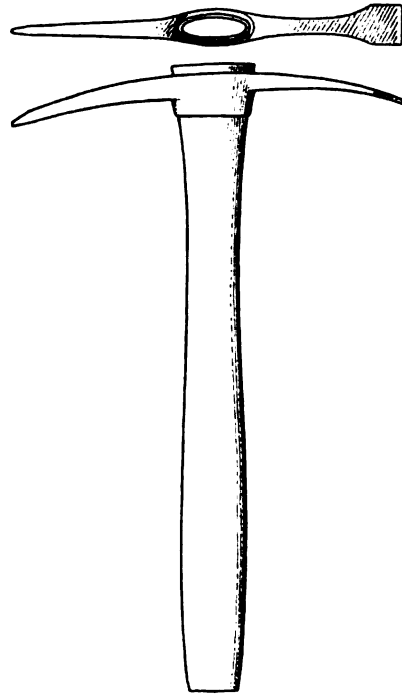


Fig. 1 a. American light pick with loose handle. $\frac{1}{4}$.

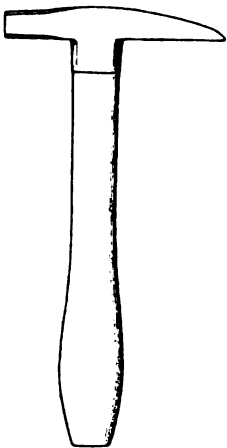


Fig. 1 b. American small pick with fixed handle. $\frac{1}{4}$.

a light and elegant pick (with easily detachable handle), which we took along with us wherever we went, even on mere reconnaissance trips. It is safe to say that this light American pick (fig. 1 a) helped us to make many an important find. For flying reconnaissance we often used a still smaller American pick with fixed handle (1 b).

For the minute and exceedingly careful excavation necessary when a precious object had been reached the Americans used a small blunt chisel-like tool and a bent hook (fig. 2 and 3) which facilitated exceedingly delicate operations. The Americans however, had gone much further in the gentle handling of their finds. The last and most risky stage of uncovering a fine specimen they carried out by the use of brushes of varied size and hardness, down to the softest hair brush. It was not long before we discovered that this final stage of excavation — by

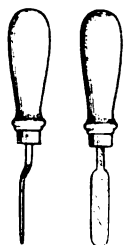


Fig. 2. American small bayonet-shaped tool. $\frac{1}{4}$.



Fig. 3. American bent hook with blunt point. $\frac{1}{8}$.

means of 3-4 types of brushes — was the most suitable method of procedure in the soft and stoneless North China loess soil.

The excavator of fossil vertebrates or archaeological specimens has certainly very often experienced the difficulty of lifting out and preserving fractured and delicate specimens which, while resting in good shape in their natural matrix, could not be taken out intact unless the small fragments were somehow fixed in their proper place. For this purpose the American palaeontologists had developed their admirable bandaging technique. This bandaging was used for fractured gigantic dinosaurs as well as for the minutest mammal skulls, except that the materials used were chosen according to the size of the objects to be preserved.

The whole of this bandaging practice was adopted by us to the immense benefit of the results of our excavations. When Dr. Zdansky excavated in Meng Yin Hsien in Shantung the huge dinosaur *Helopus*, he used for the bandaging old bags or other coarse cloth, and each bandaged block was so heavy that it necessitated the making of special arrangements to transport it over the not too good Shantung roads.

When during the Kansu expedition we excavated the large beautifully painted funeral urns which rested crushed but complete in the Pien Chia Kou grave of

the Pan Shan area, these telescoped specimens were bandaged with their whole loess content so as to form a solid piece. The material used was in this case brown Chinese wrapping paper and flour paste. It was found necessary to bandage these large funeral urns in zones. First only the slender neck was uncovered. When it was badly crushed it was provisionally tied together with strings and then bandaged, strings and all, into a solid lump, which was left to dry until the next zone was taken up for treatment. Such a zonal bandaging lasted some hours on account of the intervals for drying, but when the work was ready the specimen had turned into a solid block, which could be packed and transported without the slightest risk.

When we excavated small ceramic objects of eggshell thinness we used as bandaging material the exceedingly thin Chinese cotton paper and a solution of gum Arabic. This paper is so absorbant that a sheet could be laid over the object and the gum solution smeared over from the outside. In this manner we avoided the risk of lifting out a tiny fragment from its place.

In a few cases we were faced during the excavations with problems which I was forced to solve by means of some technical innovations adopted on the spot. Some of our really unique specimens were brought home intact in this way. I took over the excavation and cut free a pillar of loess soil with the precious object resting uncovered at the top. I then began to saturate the whole block with gum Arabic and had to repeat that process about twenty times, when finally the block became as hard as a brick and could be cut free from underneath without the slightest risk to the specimen. In the same way small blocks with groups of string beads and bone plates from the Chu Chia Chai site were consolidated by soaking with gum Arabic.

As our Kansu collections had to be carted down to the rail-head in Honan more than a thousand kilometers over very bad roads or for the most part shipped on skin rafts to the rail-head at Paoto, the packing was a very important matter. Carefully built packing-cases had to be made near the sites in large numbers, and the skill of my men in wrapping the large funeral urns in straw-ropes helped us in bringing all these collections intact to their destination.

According to the agreement between the Geological Survey of China and the Swedish China Research Committee, the prehistoric collections made by me were to be taken to Sweden, there to be described and a full half of the material returned to China. They safely reached Stockholm, where excellent housing accommodations was provided for them, as described in the dedication chapter.

Before the scientific study could begin, the material had to be cleaned, broken pots restored and the whole material labelled. Some points from this technical work deserve mention.

The huge, richly painted funeral urns, especially those from the Pan Shan area, had to be cleaned from their coating of loessic material, often strengthened by a heavy coating of lime. This cleaning operation was carried out in a most pains-

taking way by my assistant Dr. Nils Palmgren, partly with the aid of diluted (1: 3000) hydrochloric acid.

From the dwelling sites thousands of potsherds had been collected, and it was soon noticed that many of them fitted, even to such an extent that whole vessels could be restored out of these sherds. The technician of our museum, Mr. C. H. Gustafsson possesses an almost uncanny ability to fit together these »jigsaw puzzles», and we are deeply indebted to him for his contribution to this restoration work.

In those cases in which the reconstruction of large and complicate vessels was specially difficult, we had the advantage to rely upon the somewhat unusual ability of Mr. Anders Gräns, of Lund, who was for long periods kindly lent to us by Mr. G. Karlin, the founder and Director of Kulturhistoriska Museet in Lund. It is only thanks to the remarkable skill and reconstructive genius of Mr. Gräns that we are able to present such startling specimens as the giant tripods Pl. 175-176 and the large slender, exceedingly thin walled vessels with pointed bottom such as Pl. 166. Not only were these vessels reconstructed from hundreds of small fragments, but in the case of the giant tripods the material in our hands was very scarce and defective. Still there is no doubt that, thanks to the masterly work of Mr. Gräns, all these difficult restorations are correct beyond any dispute.

4.

EARLY MAN IN NORTHERN CHINA.

The hominid Sinanthropus.

The prehistory of Man in China dates back hundreds of thousands of years before the birth of modern Man, *Homo sapiens*. Once in the early part of the Miocene period there branched off somewhere on this earth from the ancestral group of *Anthropoids* a stem which through the ages developed into the *Hominids*, the family of the human beings of which Man himself is now the only survivor.

The early history of the Hominids is still an unwritten chapter, but from *Sinanthropus*, the Peking Man, and onwards we are able to trace some sections of the track that leads forward to the development of our own species.

The *Sinanthropus* site at Chou K'ou Tien contains not only some of the oldest but at the same time the most abundant remains of an early Hominid. (Pl. 1 A, the *Sinanthropus* site is in the centre of the photograph).

In fig. 4 we see the Peking plain and the mountainous region to the west of the old capital. From the Peking—Hankow main line there runs a branch-line up to Chou K'ou Tien, the mouth of one of the mountains valleys, where there is a

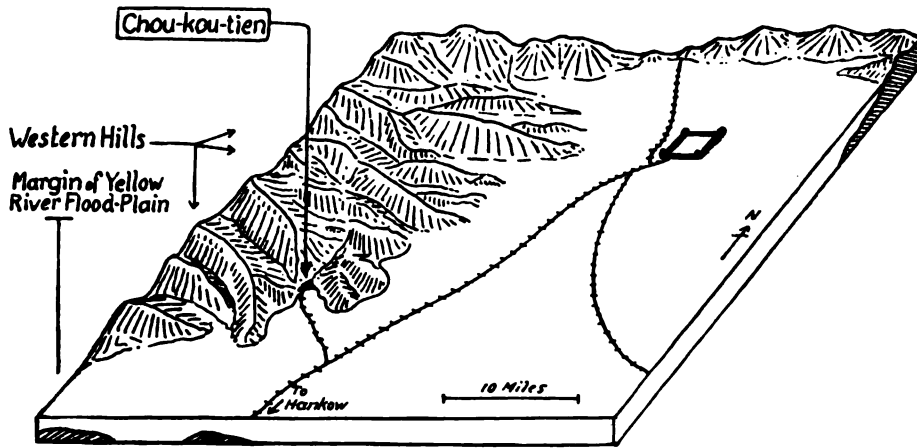


Fig. 4. Block diagram showing the situation of Chou K'ou Tien. (After Professor George B. Barbour.)

small industrial centre based upon the supply of coal, limestone and granite abounding at this place. In the Ordovician limestone there are numerous crevices and cavities. Some of them were filled with sediment dating from very remote times and contain no fossils, others stand still empty and form vast subterranean rooms. Others are filled with stratified or brecciated deposits rich in mammal remains.

The *Sinanthropus* site (Fig. 5), which is located close to the Chou K'ou Tien railway station, was discovered by us in 1921. Through reconnaissance excavations undertaken in that year and in 1923 by my collaborator Dr. O. Zdansky the two first human-like teeth were discovered, and during the first reconnaissance in

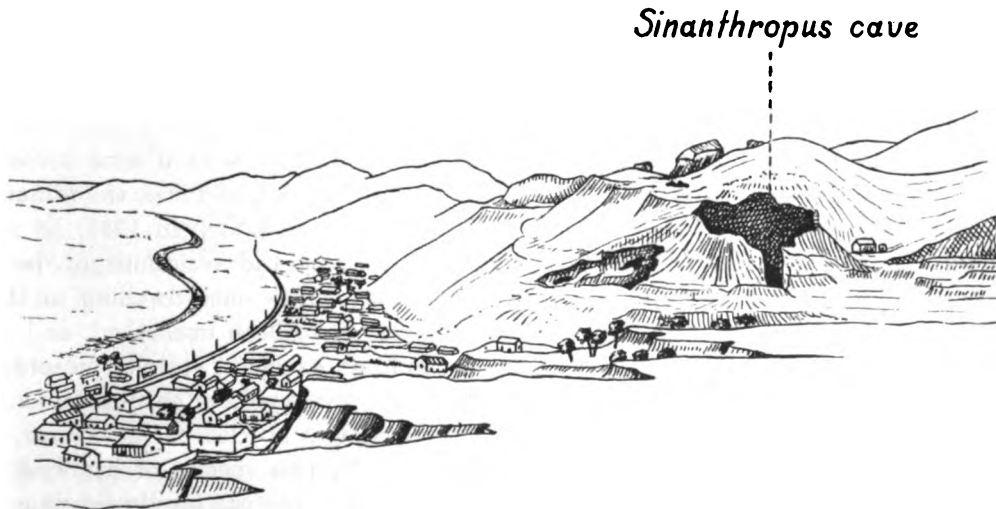


Fig. 5. The *Sinanthropus* site (loc. 1) at Chou K'ou Tien, seen from the north-east. (After Barbour).

1921 I noticed the occurrence in the limestone breccia of quartz-flakes, suggesting the presence of a human being during the time when the cave was gradually filling with sediment.

After our results were made known in 1926 there was formed a cooperation of the National Geological Survey of China, The Peking Union Medical College and the Rockefeller Foundation, the Survey undertaking the field work and the study of the fossil fauna, the Medical College through its anthropologist, Professor Davidson Black, taking charge of the human skeletal material and the Rockefeller Foundation providing the funds. For more than ten years from 1927—1937 regular excavations were carried out here with the utmost care. During these years

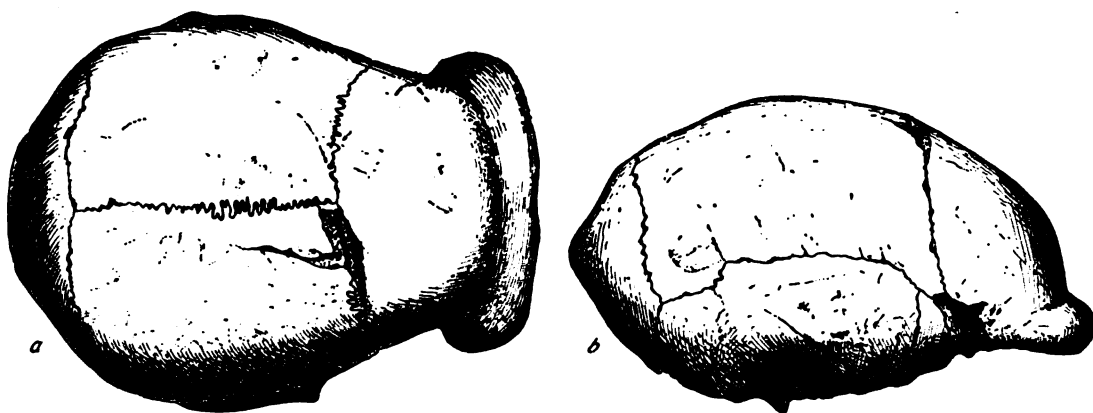


Fig. 6. The first *Sinanthropus* skull found in 1929. a, seen from above; b, seen from the right side.

the work inside the old cave was carried down to a depth of 50 metres, and 8000 cubic metres of sediment were brought out and examined in a painstaking way — certainly one of the most extensive operations ever undertaken in the search for early Man.

The sediment that filled the once empty cave is partly a hard lime breccia and partly a stratified sand-like deposit. When Abbé Breuil, of Paris, the famous expert on the Old Stone Age of Europe, visited Chou K'ou Tien in 1931, he revealed the true nature of this sharp angular sand as the residuum of beds of ashes, one of the many traces of the human-like beings once dwelling in the cave. In this cave-deposit innumerable fossil bones have been unearthed, and in the lower levels of the winding cave-rooms skulls in an excellent state of preservation were found, largely outnumbering the fragmentary finds of our early reconnaissance. Among these mammals we can distinguish two species of *Rhinoceros*, a horse, a pig (*Sus lydekkeri*), a couple of deer, a buffalo, two species of bears, *Hyæna sinensis*, a sabre-tooth tiger and another species of the cat family, large as a lion, besides many small mammal species which need not be mentioned here.

This cave fauna offers affinities to the Ni Ho Wan beds, a lacustrine deposit found north of Peking, near Kalgan. But the Ni Ho Wan fauna is decidedly the older of the two, with such archaic forms as the three-toed horse, *Hipparion*, and *Calicotherium*. In other respects also the cave deposit at Chou K'ou Tien bears a somewhat later date-line than the lake deposit at Ni Ho Wan. For this reason the Ni Ho Wan beds are ascribed to late Pliocene, whereas the Chou K'ou Tien breccia and ash beds are assigned to the beginning of the Pleistocene.

In this cave deposit, in not less than 15 spots, were found distributed all over the cave-rooms, as part of the early Pleistocene fauna, remains of the Hominid, to which in 1927 Davidson Black, basing his opinion merely upon a single molar, assigned the new genetic name *Sinanthropus*. During the years that followed the *Sinanthropus* material accumulated greatly. Not only numerous isolated teeth were found, but also jaws and skull-caps, and the accumulating material confirmed the diagnosis which Black, with the foresight of a genius, had established upon such slender foundations.

After Black's premature death in 1934 his place at the Peking Union Medical College was taken by the German anthropologist Professor Franz Weidenreich, who in his latest publications gives strong support to Black's conclusion that *Sinanthropus* and the *Pithecanthropus* of Java (which latter form has become much more fully known through recent finds) are closely related and that they together form an early group within the Hominids, to which the term Prehominids has been applied. This group is anatomically and geologically more primitive than the later Hominids, the main part of which are combined under the name *Homo primigenius* (the Neanderthal man and allies).

As will be seen from fig. 6 a & b, the brain case of *Sinanthropus* was very low with exceedingly strong supraorbital ridges and the chin (fig. 7) slanting like that of the Anthropoids. The capacity of the *Sinanthropus* brain case varied between 850—1220 cc. as compared with 1350, the cranial capacity of recent Man. In the *Sinanthropus* deposit there were found numerous crudely chipped stone implements (fig. 8),

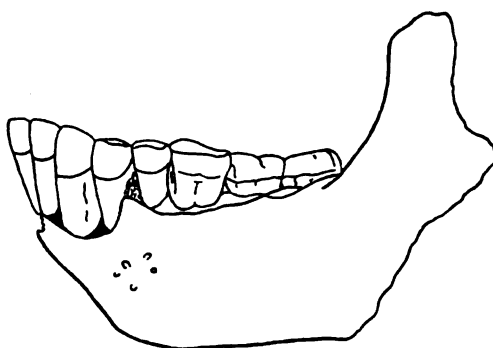


Fig. 7. Lower Jaw of *Sinanthropus* (After Black).

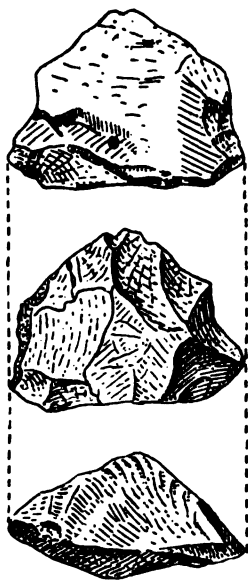


Fig. 8. Stone implement from the *Sinanthropus* site (After Teilhard and Pei).

and it is interesting to note that, as seen from the detail section fig. 9, the *Sinanthropus* remains and the stone tools were often found in the same layer.

It is a striking fact that in the *Sinanthropus* cave almost exclusively skull parts of *Sinanthropus* have been found. Not less than 40 individuals have been identified by means of skull caps, jaws and very numerous isolated teeth. Among this population there are males and females, and also 15 children. Moreover, the remains are spread over all the parts of the cave.

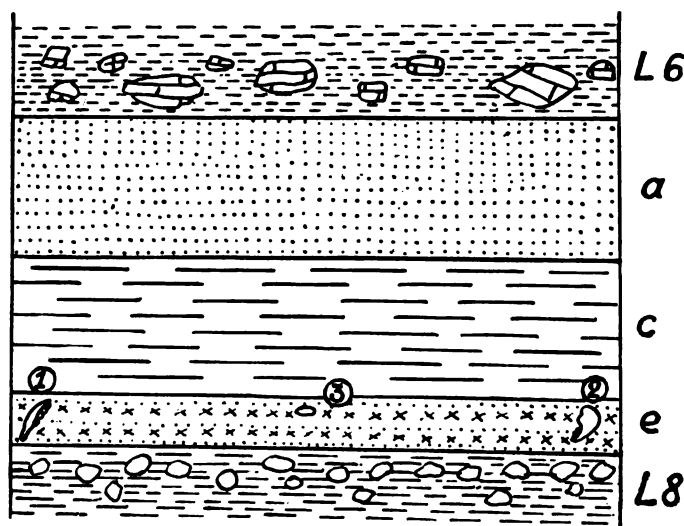


Fig. 9. Section through one of the layers (e) containing skeletal remains of *Sinanthropus* together with stone implements. (1) and (2) jaws of *Sinanthropus*; (3) fragments of skull (After Pei).

It should be recorded, however, that within the harvest of *Sinanthropus* remains there is also preserved a small percentage of bones other than cranial parts: a collar bone, the lower end of an arm bone, one complete carpal bone, a humerus and five femora. The limb bones are broken in order to take out the marrow, as is also the case with the vast number of limb bones from mammals. Consequently *Sinanthropus* cannot be freed from the suspicion of having practised cannibalism.

In 1937 the French anthropologist Boule proposed that there had lived contemporaneously with *Sinanthropus* another more advanced type of hominid, who was the real hunter of the place and who brought into the cave both the vast volume of mammal bones and the smaller amount of *Sinanthropus* remains. This very strange suggestion is based upon Boule's entirely unfounded assumption that the brain capacity of *Sinanthropus* was too low to allow him the use of fire and tools and the art of hunting. We have already seen that the brain capacity of *Sinanthropus* was not so very far below that of recent Man, and in fact it comes close

to that of the Neanderthal Man, who was an acknowledged great hunter. Considering that not less than 40 *Sinanthropus* individuals of all ages have been located within the cave, it is very striking that not a single trace is left of the phantom hominid conjectured by Boule.

Through the study of the femora, Weidenreich has proved that *Sinanthropus* had an erect posture, which explains his ability to make fire, using tools and hunting big game. Weidenreich even believes that he possesses anatomical proof that *Sinanthropus* might have been able to express himself in speech.

For our present purpose it is of interest to mention that during his profound study of the *Sinanthropus* material Weidenreich has discovered certain features which we might call Mongoloid. One of these features is the so-called Inca bone, a small independent point of os occipitale which in most modern races is confluent with the occipital bone. In very rare cases it remains isolated in modern Europeans, but eight percent of the old Incas possessed this small bone as an independent unit of the skull. Attention should be called to the fact that the vast majority of America's pre-Columbian population belonged to the Mongoloid peoples.

The second Mongoloid feature of the *Sinanthropus* anatomy is certain characteristics of the inside of the mandible. But most striking are the shovel-shaped upper incisors, which are so prominent a feature both in the Mongolian peoples and in *Sinanthropus*.

Weidenreich does not consider that the Mongoloids are the descendants of *Sinanthropus*, but rather that there is a certain amount of inheritance from this hominid mingled with ancestral influences from other so far unknown sources.

Chou K'ou Tien has proved a veritable Eldorado for the study of early Man. Thanks to the perseverance of the Chinese scientists, a number of sites other than the *Sinanthropus* cave (loc. 1) have been located in the near vicinity. In order to make the following more easily intelligible to the reader, I have on my own responsibility assigned approximate ages to the different sites (compare the chronological table). These figures in thousands of years are extremely uncertain, but they are of relative value as a help in grasping the somewhat complex sequence of sites.

THE GEOLOGICAL AGE OF MAN IN NORTHERN CHINA.

4.000 years. The Yang Shao culture: *Proto-Chinese*.

25.000 years. Chou K'ou Tien, upper cave: non-Mongolian *Homo sapiens*.

50.000 years. The Ordos finds: *Palaeolithic Man*.

Less than 500.000 years. Chou K'ou Tien, upper part of loc. 1: *Hominid* mandible and large, well made flint flakes.

500.000 years. Chou K'ou Tien, loc. 1: *Sinanthropus pekinensis*.

More than 500.000 years. Chou K'ou Tien, loc. 13: a fine flint implement.

1.000.000 years. Ni Ho Wan and Chou K'ou Tien, loc. 12 and 14: very uncertain traces of *Hominids*.

Long before the lifetime of *Sinanthropus*, all the way back to the late Pliocene, the geographical development of the Chou K'ou Tien area has been traced thanks

to a strange find made in 1933 at an altitude of 70 metres above the modern plain. In a pocket of the limestone (loc. 14), four metres broad and six metres deep and filled with yellow sand, partly hardened to sandstone, were found not less than two hundred complete fish skeletons. Everything seems to indicate that the pocket once formed a subterranean channel filled with water, a river flowing seventy metres above the present river plain. Other gravel-beds at the same level indicate that the then existent plain was located seventy metres above the Peking plain of today. Movements in the earth's crust along the big fault-lines separating the plain from the mountains may have been responsible for the change. For reasons which we cannot explain here, it is probable that these old deposits of sand and gravel at Chou K'ou Tien are contemporaneous with the richly fossiliferous Ni Ho Wan deposits near Kalgan to which we have referred above. I estimate the age of these Late Tertiary deposits at a million years. As being of the same age but different in type we may count locality 12 of Chou K'ou Tien, a cave-filling containing a primitive baboon together with some other animals of Tertiary type.

In the autumn of 1933 the Chinese scientists discovered locality 13, which during eight months of continuous excavation yielded a very rich and interesting mammal material which compels us to assign to this deposit a slightly higher age than the *Sinanthropus* site. At the bottom of locality 13 were found a very fine flint implement and some broken pebbles, which are the oldest certain hominid traces found at Chou K'ou Tien.

While the year 1933 had brought to light a culture stratum somewhat older than *Sinanthropus*, the following year revealed a remarkable superstructure of the *Sinanthropus* deposit. Here were found, in general, the same species as in the lower parts of the site, but the *Hyaena sinensis* of the lower rooms was here replaced by the more modern *Hyaena ultima*. Here, too, were found a couple of teeth and a very fine mandible of a hominid with the same ape-like, slanting chin as that of *Sinanthropus*. Together with these fossils were also found some large flint scrapers with a fine retouch, to which there is no parallel in the lower part of the site. The material from this uppermost room of locality 1 is too scanty and too little studied to allow of a decision as to whether the change in *Hyaena* and the appearance of a more refined type of instrument mark an entirely new time.

The Old Stone Age in the Ordos Desert.

In the valleys of Northern China there are found, beneath the loess-beds, layers of gravel and sand indicating that running water was prevalent in these valleys before the climate became arid and the once existent river beds were buried beneath tens of metres of Æolian dust.

In these gravel beds beneath the loess fresh water shells and mammal bones are found in favourable localities. In the basal beds of the loess formation and in lacustrine deposits contemporary with the genuine loess in the Ordos desert import-

ant discoveries were made in 1923 by two French scientists, Father Emile Licent S. J. and professor P. Teilhard de Chardin.

The first finds were made opposite Ning Hsia Fu, not far from the Yellow River at a place named Choei Tong Keou (Shui Tung Kou). ✓

Within the loess formation, which is here partly covered by a later river deposit, there was found, under at least 12 metres of typical loess deposit, over a stretch of 20 metres, a dwelling place of the Old Stone Age. The culture stratum, which was 0.5 metres thick, contained masses of coarsely hewn stone implements, as well as fragments rejected in the making of the implements (the total yield was no less than 300 kg. of stone fragments caused by the human hand.) Together

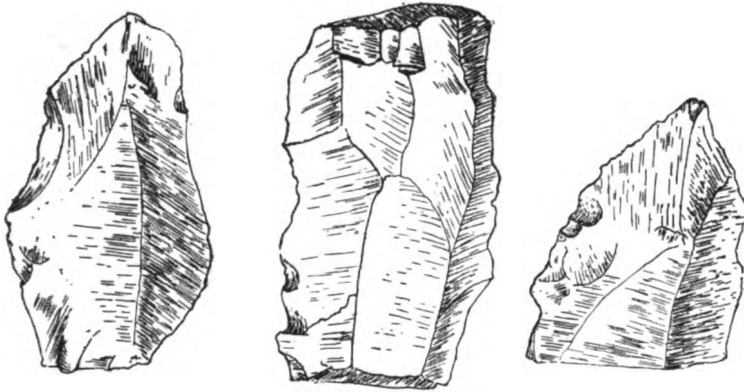


Fig. 10. Stone implements from Choei Tong Keou, presented to the Museum of Far Eastern Antiquities by Licent and Teilhard.

with the implements were found pieces of charcoal from the camp fires of the Stone-age people, and also remains of their meals in the shape of bits of bone of the Mongolian desert wild ass, *Equus hemionus*, and, more rarely, *Rhinoceros*, hyaena, antelope and cattle, as well as pieces of egg-shell belonging to the now extinct giant ostrich of the loess period.

The stone implements, as well as raw materials and chippings resulting from their manufacture, which were found in large quantities in this ancient dwelling, were for the most part made on the spot, to judge from the fact that in most cases the material had been taken from the rubble in the gravel deposits, which in this place lie below the loess. It is the same red quartzite and siliceous limestone as were found both in the stone implements and in the gravel beds. Many of these scrapers, blades and drills, etc., are of considerable size, in exceptional cases as much as 17 cm. in length.

The site here described is certainly by far the richest, but by no means the only one, at Choei Tong Keou. At several other places similar finds were made in the loess formation, and the discoverers of these primeval traces of human beings



Fig. 11. Stone implements from Choei Tong Keou, presented to the Museum of Far Eastern Antiquities by Licent and Teilhard.

summarized their observations thus: »in the whole Choei Tong Keou basin the loess contains numerous traces of an absolutely homogeneous Palaeolithic industry, left by a population which appears to have inhabited the district during the whole period of formation of the loess.

Right in the middle of the southern border of the Ordos desert, near Sjara Osso Gol, a desert river which runs eastwards into the Yellow River, the two scientists discovered a Pleistocene fauna, both enormously rich in species and well preserved, and in combination with it implements made by human beings contemporary with the Pleistocene animals.

Fig. 12 gives a section of the conditions existing in this place. The whole of the Pleistocene series of deposits consists of layers of sand with inlays of sandy clay, containing the shells of fresh-water molluscs (*Planorbis*, *Bythinia*). This series of deposits is interpreted by Teilhard and Licent as being contemporary with the genuine Chinese loess, but as having been deposited in a basin in which dune formations alternated with genuine lake deposits.

In these Pleistocene deposits was found a fauna far richer in species than one is accustomed to find in the typical loess, and this abundant animal life was clearly

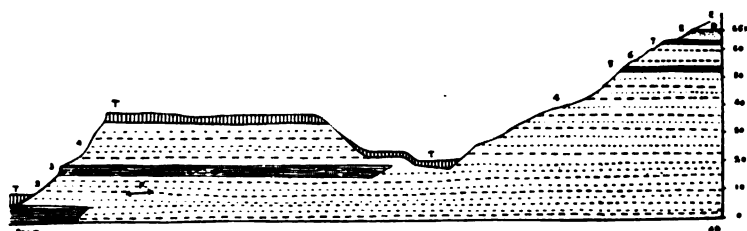


Fig. 12. Section at Sjara Osso Gol. (After Teilhard and Licent).

made possible by the copious supply of water, and consequently of pasture, to which the clay deposits with their numerous freshwater molluscs bear witness.

It was of course, the same favourable natural conditions — access to water and the availability of big game — that caused the traces of Pleistocene man to be so abundant in this place. On the whole, it appears as if the southern fringe of Ordos were an oasis in the great loess steppe, which was little less than a desert.

The imposing list of the Sjara Osso Gol fauna is as follows:

Elephas cf. namadicus. The same form of elephant that constitutes one of the genuine loess fossils.

Rhinoceros tichorinus Cuv., the woolly rhinoceros.

Equus hemionus Pallas, the Mongolian wild ass.

E. cf. prjewalskyi Poliakov, the wild horse of Central Asia.

Sus scrofa L., the wild boar.

Camelus knoblochi Brandt, a species of camel, first described from the Pleistocene of Russia.

Cervus elaphus L., red deer.

C. Mongoliae Gaudry.

C. megaceros Hart. var. *mongoliae*.

Gazella prjewalskyi Büchner.

G. subgutturosa Guldenst.

Spirocerus kiakhtensis (Pavlov). This genus, established by Boule and Teilhard de Chardin, represents an extinct East Asiatic form of antelope, found in the trans-Baikal region, Altai, Ordos and Northern China.

Ovis ammon Pallas, a form of Central Asia's big horned sheep.

Bubalus wansjocki Boule and Teilhard, a species of buffalo named after the Mongolian Wansjock, who first discovered the bone deposit at Sjara Osso Gol.

Bos primigenius, aurochs.

Canis lupus L., wolf.

Hyaena spelaea, hyaena.

Meles taxus Bodd., badger.

In addition to these major mammals there are in the Sjara Osso Gol fauna a number of insect-eaters and rodents, as well as birds, the most interesting of which is the Asiatic loess ostrich (*Struthio Anderssoni*).

Boule and Teilhard de Chardin, who described this beautiful and extremely interesting fauna, have shown that it consists of the following three elements:

1. Extinct forms characteristic of the Pleistocene age, *Elephas cf. namadicus*, *Rhinoceros tichorinus*, *Camelus knoblochi*, *Cervus megaceros* var. *mongoliae*, *Spirocerus kiakhtensis*, *Bos primigenius*, *Bubalus wansjocki*, *Hyaena spelaea*, *Struthio* sp.

2. Forms still surviving but which have disappeared from the Ordos district: *Equus hemionus*, *Cervus elaphus*, *Ovis ammon*, *Sus* sp.

3. Forms still surviving in Ordos; antelopes, wolves, insect-eaters and rodents.

In the lower part of the section of Sjara Osso Gol, marked by the letter F in Fig. 12, there were found numerous traces of human beings, but the stone implements here were consistently very small, veritable microliths, to use the terminology of the archaeologists. The explanation of the use by human beings, at this point of time, of these small and light implements is not far to seek, for there is here a complete absence of raw material in the shape of rubble, which existed in such abundance at Choei Tong Keou, and which there gave rise to a profuse development of, in some cases very large, stone implements. The difference between the finds at Choei Tong Keou and Sjara Osso Gol is to be attributed simply to the abundance of raw material in the former case and the absence of raw material in the latter. There is probably no considerable difference in age between the two places,

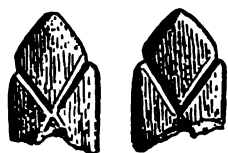


Fig. 13. Bone object from Sjara Osso Gol. (After Teilhard and Licent).

since there are also a number of microliths in Choei Tong Keou, even though they are less important there in comparison with the large implements.

An interesting discovery at Sjara Osso Gol was a fine little carved bone object (Fig. 13).

The stone implements of the Ordos desert remind us very much of the wellknown discoveries in Western Europe, especially in France. In type, the majority of the implements are most closely connected with the cultural epoch known in Europe as Mousterian, which terminates the earlier part of the Old Stone age. But there are also numerous resemblances to the next succeeding period, the Aurignacian. Exceptionally we even find objects which in their perfection remind us of the still later culture which the French call the Magdalenian. In view of our limited knowledge of the Old Stone age in Eastern Asia it may, however, be too early to enter into detailed comparisons and we must content ourselves for the present with the suggestion that the Ordos discoveries most resemble in type the Mousterian-Aurignacian civilizations in Western Europe, that is, the middle of the Old Stone age.

Although the two French scientists discovered thousands of stone implements, yet, in spite of all their searching, they failed to discover *in situ* remains of skeletons of Old Stone-age Man. The only discovery of this kind was a tooth, which was found on the surface of the soil of the modern Sjara Osso Gol, and which, on account of its state of preservation is supposed to belong to the Palaeolithic Age.

In my tentative table on page 25 I have assigned to this Ordos culture an age of 50,000 years. As is shown by the mammal fauna, it belongs to a relatively late stage of the Pleistocene. The Chou K'ou Tien *Sinanthropus* site with its Old Pleistocene fauna is very much older (500,000 years) than the Ordos beds, and dates from a time when the geographical contours of the areas differed considerably from those at the present time.

The Upper Cave of Chou K'ou Tien.

The astounding wealth of fossil material accumulated in the Chou K'ou Tien hills is further enhanced by a find made in 1933 on the very top of the *Sinanthropus* site.

Already in 1930, when they uncovered the uppermost part of the *Sinanthropus* site, the Chinese scientists had noticed, high up on the hill-slope, a cave-opening filled with a grey loose breccia quite different from the sediment in the cave below. In May 1933 they began a carefully planned excavation, which was completed the following year and yielded rather startling results.

It became evident that this upper cave belongs to the same system of rooms in the limestone as the *Sinanthropus* deposit, but that the old deposit never reached up to this high level. After the *Sinanthropus* time, long periods passed during which the region was so changed by erosion that the upper cave became directly accessible from the north side of the hill-slope. For some time the cave room served as a natural trap in which large carnivores (bear, tiger, hyaena) perished. Only in this way does it seem possible to explain the numerous complete skeletons of the said animals which were found in this deposit.

Besides the numerous carnivores, there were also found here wild ass, pig, deer and antelope, as well as some teeth, probably of *Bos primigenius*. This fauna is closely allied to the modern mammal life and there are none of the archaic types constituting the *Sinanthropus* fauna. Even the fauna of the old Stone Age in the Ordos desert is more ancient, forming in fact a very definite stage between the Old Pleistocene *Sinanthropus* fauna and the Upper Pleistocene of the Upper Cave of Chou K'ou Tien.

The more recent character of the Upper Cave deposit is further accentuated by the human implements and objects of adornment collected there: a few tools of flint and vein-quartz, a sewing-needle broken at the hole, two polished bones, and some ornamental objects such as a perforated stone, four perforated canines of deer and numerous perforated canines of fox and badger. Perforated shells of a marine mussel, *Arca*, fish vertebrae and pieces of oolithic hemantite are also worth mentioning.

The most precious finds are four well preserved human skulls, two of which have been violently perforated by a blow on the left side. In a third case the fatal blow fell over the neck. The most remarkable feature of these skulls is that they show no Mongolian features. The appearance of a non-Mongolian *Homo sapiens* as an episode between the hominid *Sinanthropus* with its mongoloid features and the Protochinese, which according to our finds in Honan and Kansu were well established 4000 years ago, is one of the surprises which prove that the history of mankind is much more complicated than we might at first sight be inclined to believe.

THE GEOGRAPHICAL SETTING OF THE PROTO-CHINESE.

The cultures which I studied during my excavations in Northern China include many purely Chinese features which I shall enumerate in chapter 29 of this volume, L «The Yang Shao culture compared with historical China». Dr. Black's researches on the human skeletal material which I brought to Peking also support the idea that the prehistoric tribes whose dwellings and graves I studied have largely contributed to the creation of the Chinese race and to the foundations of early Chinese culture. In his first monograph «The Human skeletal remains from Sha Kuo T'un in comparison with those from Yang Shao Tsun». Pal. Sin. Ser. D. Vol. 1. Fasc. 3. 1925, Black says (P. 98) that «the Sha Kuo T'un and Yang Shao peoples conformed to a type essentially similar to that represented by the present day North Chinese with whom comparison has been made. At the same time departures from this common type evidently characterize each of the three groups, though these differences would appear to be no greater than those distinguishing from one another the different groups of North American aborigines with whom comparisons have been made in the body of this report».

✓ In his second monograph «Kansu and Honan prehistoric skulls», Pal. Sin. Ser. D. Vol. VI Fasc. 1. 1928, he writes (P. 81): «Further, the resemblances between these prehistoric and recent North China populations would appear to be such that the term «proto-Chinese» may with some propriety be applied to the former.»

From this combined archaeological and anatomical evidence I feel justified in naming the Honan and Kansu carriers of the Yang Shao culture Proto-Chinese.

In a popular volume published in 1934 I have given still another name to these tribes: «Children of the Yellow Earth». By this designation I wished to express the geographical coincidence of the Yang Shao culture with the maximum development of the aeolian loess, the Yellow Earth, or in Chinese *Huang T'u*. For the present it will suffice to state that the northern provinces of China proper, where the Huang T'u reaches its maximum, also form the homeland of the Yang Shao culture: Honan, Shansi, Kansu and Shensi.

In Honan I was able personally to study only two sites: Yang Shao Tsun with abundant painted pottery and Pu Chao Chai without this component, but otherwise identical with the first-mentioned site.

The topographical setting of the two sites is the same: a gently sloping loess-plain dissected by numerous steep ravines which have cut up the prehistoric villages into lobes and erosion islands.

When I first began my survey of Yang Shao Tsun, I was under the impression that the ravines were older than the prehistoric village, that they formed a kind of natural fortification, sheltering the site from practically all sides. But as our work progressed I noticed that a small stream-deposit containing artifacts from

the site had been formed on a level with the culture deposit, and 40 metres above the present stream that flows at the bottom of a deep gully. In fact, the old stream-deposit forms the top of the almost perpendicular erosion cliff overhanging the gully (Pl. 4 right). Gradually it became clear that the whole topography had been radically changed thanks to the post-Yang Shao erosion, the ground water level had been lowered, and consequently the wells from which the Yang Shao dwellers had drawn their water were left dry.

In Pu Chao Chai, a place which I know only from a rapid visit, the conditions are much the same as at Yang Shao Tsun. But this village is nearer to the stone hills in the North. Here the ravine is broader and less deep, with masses of huge boulders strewn over the bottom.

Unfortunately I was never able to visit the rich Yang Shao sites in Ho Yin Hsien, further east in Honan on the south bank of the Yellow River.

In the T'ao Ho valley of central Kansu, and also in the Kuei Te Hsien canyon in western Kansu, I found topographical conditions which at first sight looked very like the Yang Shao Tsun topography, but which in fact are radically different as here the ravine topography is older than the sites. The Kansu sites Ch'i Chia P'ing, Hsin Tien and Hui Tsui in the Tao valley and Lo Han T'ang in the Kuei Te valley were the homes of populations which deserve the name *terrace dwellers*. They took advantage of the pre-existing topography and selected for their homes lobes or entirely circumscribed erosion islands which offered protection against hostile attack.

We are here confronted with a question to which I can offer only a tentative reply.

From the scattered data so far in our hands it looks as if the erosion set in much later in Honan than in Kansu. We know that the Kansu Yang Shao is strictly synchronous with that of Honan, and yet in the former sites the erosion is pre-Yang Shao and in Honan post-Yang Shao. The tentative explanation which I offer below is at the very best a temporary help to coordinate these phenomena.

The topographical location of the Honan and the Kansu sites is radically different. All the sites mentioned above from Kansu: Ch'i Chia P'ing, Hsin Tien, Hui Tsui and Lo Han T'ang, are located on the very front of the Malan terrace escarpment directly overlooking the main valley. With Yang Shao Tsun and Pu Chao Chai it is quite different. The main valley is here 8 km. distant in the south at Mien Chih city.

The loess erosion is a regressive process. The water acts not at the surface of the loess but at the bottom. The rainwater sinks easily through the porous aeolian dust and mingles with the bottom layer of the loess into a slowly fluent porridge. As the bottom-layer gradually flows away, the higher levels of the loess-wall sink down in large and small blocks, often carrying some vegetation — a process that can easily be studied in almost every innermost sinus of the loess ravines. The ravines grow backwards with their full depth. But in most cases

the retrograde movement is slow, possibly only a few feet or less every year. So that from the main escarpment at Mien Chih city to Yang Shao Tsun the regressive process may have lasted thousands of years. At any rate, the dismembering of the unbroken plain is now in full swing within the modern village of Yang Shao Tsun, where the destructive process can be followed from one rainy summer to the next.

If this explanation is correct, there might be undissected sites further back in the interior of the sloping loess plains of Kansu, and there may be frontal sites in Honan where the prehistoric settlers took advantage of a preexisting dissected terrace, as did the settlers in the frontal sites of the T'ao Ho valley of Kansu. From this point of view it is to be regretted that I never found time to visit the Ho Yin sites, which to judge from Pai's report seem to be of the frontal type.

The next problem with which we are confronted concerns the *forces* that have caused this erosion, which during the last few milleniums reduced the layers of loess and cut them to pieces by thousands of ravines.

One of these forces, possibly the principal one, is Man himself, who through ruthless deforestation has reduced the once almost continuous forest cover of Northern China to very scanty remnants.

In our time the rural population over large parts of Northern China is reduced to straw and the smallest kind of hill-side bush for fuel in their stoves. Real woods are mostly seen only under the protection of the temples and at the tombs of emperors, princes and county nobles. As late as in the twenties of this century one of the finest forests of the north, those at the Eastern tombs of the Manchu dynasty, the Tung Ling, were ravaged by greedy profiteers, and the last resort for two of the prides of the fauna, Reeve's pheasant and the *Macacus chiliensis*, was destroyed. Already during the Ching dynasty Père David's deer, the strange *Elaphurus davidianus*, once a common inmate of the swamps of the Peking plain, had been given a last refuge in the Imperial hunting park.

In the prehistoric sites, such as Yang Shao Tsun, Ma Chia Yao and Hui Tsui, the sediment of the culture stratum is a loose light substance to which my men gave the name hei t'u on account of its dark colour. This hei t'u contains a certain amount of loess from the surroundings, but it consists largely of ash mixed with pieces of charcoal, pottery and refuse bones from the meals of the ancient villagers. Two things in this sediment, the abundance of charcoal and the frequency of bones from wild game indicate the proximity and wide growth of forest.

If I am not mistaken in my conception of the rise of the Yang Shao culture as having been carried forward on a mighty wave of agricultural achievement, there may have taken place at that time a ruthless process of forest clearance in order to prepare new fields for cultivation. As soon as the forest vegetation was destroyed by fire and decay, the stoneless loess soil offered no resistance to the limestone hoes of the Yang Shao tillers. It is quite likely that not only was the Yang Shao period an epoch of remarkable advance in agriculture but at the same time it marked the beginning of the destruction of the protective woods.

These considerations bring us to another problem, the possible changes of climate. There has been a widespread belief in modern China, fostered partly by the beneficent propaganda for afforestation, that the wholesale destruction of the forest cover will impair the climate. A direct influence upon the climate is not very likely, but the removal of the wood-cover certainly has a considerable deteriorative influence upon the fertility of a region by facilitating the wash-away of the soil and by permitting rapid discharge of the rain that was retarded and stored by the forest plant cover. Along these lines the destruction of the forest works to increase both drought and inundation — the two scourges of historical China.

There is little or no doubt that the Yang Shao farmer by his primitive tilling operations began the denudation of the once wood-protected loess areas of Northern China. But there is a further problem: have natural changes, working independently of the actions of Man, caused a change in the climate of China in proto-historical and historical times, or to express it differently, had the Yang Shao time a different climate, more or less favourable to Man, than the present one? There are indications that such a change has taken place, and I propose to record the facts.



Fig. 14. Mandible of *Rhizomys troglodytes* from Yang Shao Tsun.
2/3 of nat. size.

Soon after my return to Sweden in 1925, Dr.

Elias Dahr undertook at my request a preliminary study of the refuse bones brought home from the dwelling sites. His preliminary report has been left waiting for a revision, which will be undertaken now that the whole of the material is available. His observations throw considerable light on the problem here in question.

There is a mammal which, as far as we know, is entirely unknown in Northern China in modern time, namely the bamboo rat, *Rhizomys sinensis* Gray and *R. vestitus* Milne-Edw., now living in Central, Southern and Western China. Numerous mandibles of *Rhizomys* were found in the Yang Shao sites and Dr. Dahr has informed me that these specimens do not belong to anyone of the living *Rhizomys* species but to *R. troglodytes* Matthew & Granger, described from an early Pleistocene cave deposit in Szechuan.

In 1936 P. Teilhard de Chardin and C. C. Young published a very important paper »On the mammalian remains from the archaeological site of Anyang». *Pal. Sinica*. Ser. C, Vol. XII, Fasc. 1. This paper gives an exhaustive description of the mammal material collected during the Academia Sinica excavations in the ancient capital of the Yin dynasty (circa 1400 B. C.)

From this site there are mentioned three lower jaws, which are referred not to any of the living species but to the *R. troglodytes* Matthew & Granger from the early Pleistocene of Wan Hsien in Szechuan.

On the whole, *Rhizomys* is a decidedly southern type and its occurrence in the Yang Shao sites and at Anyang is a very remarkable fact.

It is a well known fact that *elephants* played an important rôle in Anyang time. These animals are mentioned on the oracle bones, and the site is known for its magnificent ivory carvings. Some molar fragments from the collections of Lo Chen Yü are in the Museum of Far Eastern Antiquities, and an incomplete lower molar is described in Teilhard's and Young's monograph, being there referred to *Elephas indicus*.

The said authors quote Mr. T. C. Chang, who holds the view that there is no historical evidence proving the existence of wild elephant and *Rhinoceros* in northern China since historic times.

As far as *Rhinoceros* is concerned, we are in a position to report a Yang Shao find. From Ma Chia Yao Dr. Dahr has identified the proximal part of a femur, though the species remains undetermined. From the same locality Dr. Dahr also mentions some large and powerful specimens of wild cattle, which he has determined as *Bos namadicus* Falconer & Cautley.

A very strange guest in the Anyang association is a tapir determined as *Tapirus cf. indicus* Cuvier, of which two lower jaws are described.

Another animal of considerable importance for our present problem is a water buffalo, represented in Anyang by a complete skull, a few jaws and a large number of cannon bones. These specimens have been referred to *Bubalus mephistopheles* Hopwood.

In the peat-bogs in San Ho Hsien of the Peking plain, which I have described in »Essays on the Cenozoic of Northern China«. Mem. of the Geol. Survey N:o 3, 1923, P. 84—92, some remains of water buffalo were found: a skull and a cannon bone, which Dr. Dahr has referred to the modern domesticated water buffalo of S. China, *Bubalus indicus*.

Among numerous other mammals which will not be mentioned here, we have to report from these peat-bogs the water-deer of the Yangtse valley, *Hydropotes inermis* Swinhoe. The remains belong to at least two, possibly three specimens. As I found some iron objects in the peat, the deposit cannot well be older than the Han dynasty. Quite a number of bones of this tiny deer were found in the much older Anyang site.

From the peat-bogs of San Ho Hsien Dr. Dahr has also determined about ten antlers of Père David's deer, *Elaphurus davidianus*, worked by Man.

Another species of the same strange deer, *E. menziesianus* Sowerby is described from the Anyang site.

From sites of very varied age we have brought together above a number of mammal types whose presence in Northern China is something of a surprise. These species are:

Rhizomys troglodytes.

Elephas indicus.

Rhinoceros sp.

Tapirus cf. indicus.

Bubalus indicus.

» *mephistopheles.*

Hydropotes inermis.

Elaphurus davidianus.

» *menziesianus.*

From the sites of the Yang Shao culture (2200—1700 B. C.), from the site of Anyang (1400 B. C.) and from the peat-bogs of the Peking plain (Han-time?) we have quoted above the existence of nine mammal species which are considered to bear upon the problem of climatic changes.

Three of them, the bamboo-rat (*Rhizomys*), the water-buffalo and the small water-deer (*Hydropotes*) are southern forms entirely extinct in N. China of today but characteristic of the moist and warm Yangtse valley, *Rhizomys* and *Hydropotes* as wild animals and the water-buffalo as the domesticated servant of rice-cultivation.

Still more accentuated strangers are undoubtedly the *elephant*, the *rhinoceros* and the *tapir*. The elephant and the rhinoceros are frequently mentioned among the Chou animals as living in central and southern China, the Yangtse valley and further south.

The occurrence of a *Rhinoceros* of unknown species together with the Yang Shao people at Ma Chia Yao in central Kansu is proved beyond doubt by the femur identified by Dr. Dahr.

Teilhard and Young, who have determined the Anyang elephant as *E. indicus*, believe upon the authority of T. C. Chang that the animal was imported from the south and kept tame by the Yin court. Professor Karlgren has very kindly examined the oracle bone entry round which this problem rotates and has arrived at the conclusion that we must consider the elephant as an animal living in a wild state in the vicinity of Anyang in Yin time. His communication is formulated as follows:

»On the oracle bones from An-yang there occurs an entry (Yin k'ü shu k'i ts'ien pien 3: 31: 3) *huo siang*, »(we) caught an elephant», the verb *huo* to catch being the regular term for catching game in the hunt (*huo lu* »we caught deer», *huo shi* »we caught boars» etc.). Lo Chen—yü concluded already in 1914 (Yin k'ü shu k'i k'ao shi, p. 36) that in Yin time there existed wild elephants around the Yellow River (»to the north and the south of the Huang ho»); and indeed the text is quite conclusive. The passage in Lü shi ch'un ts'iu (3rd c. B. C., chapter Ku yüe), which records an old tradition that »the people of Yin tamed elephants and (by them) maltreated the Eastern barbarians» (i. e. used them in warfare) may, of course, be interpreted in two ways: either elephants were imported from the Yangtsi-Huai-ho region (where they were still used for warfare in 506 B. C., Tso chuan: Ting kung 4th year) and were tamed by the Yin purchasers; or they were caught around An-yang and tamed. In view of the oracle text just adduced, the latter seems the more plausible.»

The *Tapir* is certainly a great surprise in the Anyang fauna. Teilhard and Young interpret this animal in the same way as they do the elephant: a stranger from the south, imported for the pleasure of the Court; and they prove the existence of a considerable trade with the south by mentioning the find of tin ingots in the Yin capital. However, the two scientists found another way of interpreting the find of tapir remains in the wastes of Yin. They write:

»First it might be supposed that a special form of Tapir (*T. sinensis*) has been living all across the Pleistocene and protohistorical times along the sea-plain of China, much more to the north than we thought, and that some individuals could still have been killed by the Anyang hunters. The little excess in size observed in

T. sinensis and the Anyang Tapir over *T. indicus* (or *malayanus* Taffles) would support this idea.

But in opposition to these views, the impressive fact still holds strong that no trace of Tapir has ever been recovered so far from any not artificial Pleistocene or Holocene site in North China, and that this absence is in accord with definite climatic conditions. More positively, we shall give below, further evidences pointing to the fact that the Anyang people had some kind of trade, furnishing them with foreign living or dead animals.»

It remains for future research to prove which of the two explanations of the tapir remains in Anyang is the true one.



Fig. 15. The waterdeer, *Hydropotes inermis*
(After Lydekker).

Before we go on to discuss the life history of *Elaphurus*, I wish to quote a statement made by the big game hunter and naturalist Arthur de Carle Sowerby, who has an intimate knowledge of the fauna of China. In his entertaining volume »A Sportsman's Miscellany» he says (P. 47), when speaking of the small water deer, *Hydropotes*:

»The hoofs are soft, rather blunt for a deer, and spread widely, which last characteristic enables the little animal to progress without sinking in the soft mud of the places it frequents.»

We learn from this statement that *Hydropotes* has adapted itself to a life in marshy ground even to the extent that its feet are enlarged so as to allow the little animal the better to stand upon the soft boggy soil.

Now we come to the nearly ended life-history of *Elaphurus*. As far as I can judge, this is, unlike the rest of our mammal list, a North China animal. It is found subfossil at Anyang and in the Pu Lao Ting peat-bog just E. of Peking. In modern times it was nearly extinct already at the beginning of this century, when

a small stock was preserved in the Imperial hunting grounds S. of Peking, to be subsequently transferred to the game park of the Duke of Bedford in England.

Certain statements made as to the occurrence of *Elaphurus* SW of Kokonor, in Ili, in Tarbagatai and in Manchuria are probably due to confusion with other animals, among them the reindeer. The subfossil finds and the last resort of the living animal mark it down as an inhabitant of the coastal plain of N. China.

Elaphurus was a queer-looking animal. Its colloquial Chinese name is *Ssu Pu Hsiang* meaning »unlike four«, that is to say, not like the horse, not like the ox, not like the deer and not like the goat. The literary name of the animal is *Mi*.

From the descriptions by Möllendorff (Journal N. C. B. R. A. S. 1877) and Sowerby (ibid. 1916) we gain a very clear idea of the habitat and nature of this animal.

Möllendorff visited the Nan Hai Tze, the Imperial hunting grounds immediately south of Peking. It was a small part of the Peking plain, an irregular square, about fifty English miles in circumference and sheltered by a brickwall about ten feet high. Within this area there were some small streams and marshes, and the ground was given up to several kinds of wild game, foremost of them *Elaphurus*, of which Möllendorff saw herds of more than a hundred heads. He states that the animal prefers places near water and that the feet carry large callous cushions, which appear to be fleshy when compared with the hard hoofs of the common deer. Möllendorff is of the opinion that the *Mi* »was originally indigenous to the plains of Northern and Central China, and that it has gradually been extinguished by the progress of cultivation«.

Sowerby writes that *Elaphurus* was probably an inhabitant of flat marshy lands, to judge from the large splayed hoofs. »I incline to the belief that it inhabited the plains of Chihli, before the reedy swamps were brought under control by canals and cuttings, and when cultivation had not yet destroyed all cover as it has done since.«



Fig. 16. Père David's deer, *Elaphurus davidianus*
(After Lydekker).

Dessication and a lowering of the temperature, accentuated by the ruthless attack upon forests and marshes by the busy farmers of forty centuries, may have caused the change that depleted the once well stocked big game of Northern China.

Nevertheless, in the time of Kublai Khan (1260—1294) the Peking plain seems to have been swarming with all kinds of game. We quote from Marco Polo the following notes on the spring hunt of the Great Khan:

The Emperor started on his hunting expedition in the beginning of March, travelling in a direction towards the sea, which means over the coastal plain. He brought with him an immense retinue amounting to several tens of thousands of falconers etc., and in addition to dogs and falcons they used as hunting animals also hunting leopards, tigers and eagles. »The Lord remains encamped there until the spring, and all that time he does nothing but go hawking round about among the canebrakes along the lakes and rivers that abound in that region, and across fine plains on which are plenty of cranes and swans, and all sorts of other fowl. The other gentry of the camp also are never done with hunting and hawking, and every day they bring home great store of venison and feathered game of all sorts. Indeed, without having witnessed it, you would never believe what quantities of game are taken, and what marvellous sport and diversion they all have whilst they are in camp there.»

The lists of the game obtained are held in such general and ambiguous terms that little or nothing can be learnt from them. There is of course even today plenty of fowl around the lakes and marshes, but the big game has entirely vanished and the land is cultivated where it is not too poor or overtaken by blown sand.

When I discussed with Professor Karlgren my finds in the peat-bogs of the Peking plain, he told me that the Chou annals are rich in statements about *Tsé*, places where there were swamps in those ancient times. He has presented me with the following entries, which are said by him to be in no way exhaustive:

»Hsiu-tsê in Yüan-wu hsien of Huai Ch'ing fu, Honan.

Yü tsê east part of Lo-yang hsien, Honan.

Meng tsê in Shang-ch'iu hsien of Kuei tê fu, Honan.

Feng tsê in Shang-ch'iu hsien of Kuei tê fu, Honan.

Chuan tsê in Wei-huei fu, Honan.

Chi tsê, NE of Kuang p'ing fu, Hopei.»

From this communication it seems as if marshes and swamps had been more abundant in early historical times than they are today, and I think that this conclusion is well supported by a body of cumulative evidence. However, one reservation should be made. It is probable that the marshes in the alluvial plain of N. China are not stationary but migrating. Every indication goes to

show that the coastal plain has been sinking ever since a distant geological past. The sinking of the land and the subsequent advance of the coastline is counteracted by the very abundant sedimentation of the silt-laden rivers. Where a river in the course of some centuries raised its bed, low plains are cut off from their former outlet and transformed into marshland or shallow temporary lakes. Such a migration of the swamps must be taken into consideration when these complicated problems are discussed. To judge from Professor Karlgren's very important communication, combined with our other evidence, it seems at any rate highly probable that marshes fringed by brushwood and forest, swamps and shallow lakes in prehistoric and early historic times filled vast tracts of the coastal plain where we nowadays find cultivated land alternating with areas where blown sand prevails and the dunes encroach upon the orchards and tilled fields.

The material at present in our hands is not sufficient to prove conclusively that the climate of prehistoric and early historic China was warmer and, in particular, more humid than the climate of northern China of today. The dominating influence of intensive cultivation of the land forms a smoke screen hiding the processes of nature.

A systematic investigation into this great and fundamentally important problem will certainly differentiate the processes of nature from those of cultivation. Such organized research, guided by literary sources specially with reference to the occurrence of *Tsé* in early historic time, will no doubt concentrate upon the archives which Nature has laid down in the peat-bogs and associated lake sediments. If these are studied in intimate detail according to the methods worked out by Professor L. von Post, the founder of «pollen analysis», the effects of Nature and the action of Man will probably be outlined in all their complicated interaction.

* * *

We have tried above to analyse the evidence which seems to indicate that the climate of Northern China was warmer and more humid in prehistoric and early historic times than it is today. We have arrived at the conclusion that the finds of southern mammals in Yang Shao deposits, in the wastes of Yin and in the peat-bogs of the Peking plain, point in that direction but that the problem is complicated through the rapid advance of agriculture and the deforestation following in its wake.

From a distant corner of my field of research I have some evidence that may possibly point in the same direction as the facts which emerged out of the Peking peat-bogs.

At the southern edge of Western Gobi, on the outskirts of the Chenfan oasis I found in 1923—24 a culture of the late local Bronze Age, the Sha Ching culture,

which is here described in chapter 21. For the purposes of our present discussion it is necessary to know only the modern topography.

The Sha Ching area is at present plain desert. Only the tree tops of the Chen Fan oasis can be seen at a distance from the highest dune ridges, but the grave field and the walled-in place that we are about to discuss are at present entirely waterless.

5 li further north is Sha Ching village, where there are wells but no cultivation of any kind. The poor little hamlet exists only as a resting station for wayfarers. Forage for the animals and food for the men is all taken from the oasis about 10 km. away.

At the Sha Ching S grave field situated 5 li south of the village there are traces of human habitations from widely different times. The oldest is the Sha Ching stage, which I date about 700—500 B. C. The period has left behind it a small dwelling-site surrounded by a mud wall and a grave field nearby.

The next period is Han, 206 B. C.—220 A. D. Thirty small hut ruins and huge masses of slag bricks represent this time, marked by the abundance of Wu Shu coins.

Lastly there is the ruin of a small watch tower with glazed crockery, which can hardly be earlier than Sung.

The ground all over this place and all the way to and around Sha Ching village is level and consists of sandy grey clay. Over this clay ground wander sand dunes moving from NW to SE. Some of the Han ruins were hidden beneath the dunes at the time of my survey of the area in 1924. Now the place is certainly different owing to the restless march of the blown sand.

It struck me as a noticeable feature that the clay underlying the dunes in many places contains small freshwater molluscs.

I consulted Professor Karlgren on the meaning of the name Liu Hu T'un, by which the old fortification is locally known, and he told me that it means *The colony of the six lakes*. The name is certainly highly suggestive. It is far from improbable that it is a survival from a time when shallow ponds made the place more inviting. The observation that the bird friezes upon the Sha Ching mortuary urns represent waterfowl, the hooper (*Cygnus musicus*) is noteworthy in this connection. However, I would not press this evidence too hard as proof of a change of climate. The Chen Fan river is only about 10 km. distant. The land is entirely flat and the river may well have changed its course since the time when it watered the Liu Hu T'un area.

Nevertheless, as a note contributing to the discussion on possible changes of climate »The colony of the six lakes« certainly deserves attention.

* * *

The geographical setting of the Yang Shao settlements can be studied with great advantage from the reports given by Dr. E. Dahr on the mammal remains

which we brought home from the refuse beds of those settlements. Dr. Dahr's investigations were carried out in 1926 soon after my arrival in Stockholm with the collections. Parts of the material were then not available. It is planned that Dr. Dahr will prepare and publish in this Bulletin a paper on all our bone material. We will here give a brief summary of his preliminary report of 1926.

From the two main Honan sites, Yang Shao Tsun and Pu Chao Chai, he had no material at his disposal. Their bone content differs radically from the material collected at Chih Kou Chai, one of the Ho Yin sites, in being very poor in fish bones, whereas they abound in Chih Kou Chai, which together with the other Ho Yin sites is located close to the Yellow river.

The mammal species represented at Chih Kou Chai are as follows: most common are the pig and the domesticated dog. Domesticated cattle are also well represented, but neither sheep nor goat were observed. Of wild animals there were deer, probably a *Pseudaxis* and a small number of hare-bones.

At Ma Chia Yao in Kansu, the very rich dwelling site of Yang Shao age, the domestic pig was most abundant. The only other domesticated animal at this site was the dog.

The wild animals found at Ma Chia Yao are very remarkable. Of cattle, there are very large bones of *Bos namadicus* Falconer and Cautley, of deer large specimens of *Cervus canadensis*. The sika deer and the roedeer are also apparently represented.

Most interesting of all is the find of a femur of *Rhinoceros* sp.

Ch'i Chia P'ing is the type locality of the Ch'i Chia stage, which we consider to be the oldest of our Kansu cultures. This rich site is only about 20 km. distant from Ma Chia Yao, and the difference in the bone content is very noteworthy. Here the domestic animals are more fully represented than in any other site: dog, pig, cattle, goat and sheep are all identified in numerous bones. Of deer there are some few fragments.

At Lo Han T'ang in the Kuei Te canyon the pig is very poorly represented with only two fragments. Cattle is common, as are also goats and sheep. All these animals were probably domesticated, as was also the dog. Of wild animals there are numerous antelopes, deer, hares and the marmot (*Arctomys robusta*). That the Lo Han T'ang dwellers were also great hunters of antelope, and at the same time raised cattle, sheep and goats, accords very well with the geographical position close to the Tibetan steppe, where stock-raising and hunting are still very profitable.

* * *

The only direct find of a cultivated plant in any of our prehistoric sites was made in a fragment of a pottery jar from Yang Shao Tsun. It was unusually thick in the wall, porous and full of plant imprints. Two Swedish botanists, G. Edman and E. Söderberg, examined this small fragment and their examination

led to a most important discovery. It could be shown with certainty that the plant imprints in this fragment were husks of cultivated rice (*Oryza sativa*¹). The discovery was in a high degree sensational, not only because it sets back the history of rice some distance in time, but also because it points, not to dry Northern China, but to rainy Southern China.

That the Yang Shao people, and likewise the bearers of later cultures up to the Ssu Wa stage, were largely agriculturists seems to me evident from the fact that they lived in large well-established communities. In fact, it is in some places quite astounding how extensive are the sites when compared with the nearby villages which lent their names to the respective sites. At Yang Shao Tsun the present village habitations occupy only 62.000 square metres as compared with the 243.000 square metres strewn with the débris of the prehistoric site. At Ch'i Chia P'ing in Kansu the present village covers only 35.000 sq. metres as compared with 154.000 sq. metres occupied by the prehistoric site.

It is true that in both cases the cultivated fields of the modern villages cover larger areas than the ancient sites, and it may also be conjectured that the prehistoric tribes spread their huts more expansively than do the villagers of today. Still there is no doubt that these immense cultural deposits, amounting locally to 3—5 metres in thickness, mark the site of large permanent settlements.

6.

STONE IMPLEMENTS OF NORTHERN CHINA.

During the early years of our collecting campaign (1918—20), when we travelled widely in the Sino-Mongolian borderland, we collected many hundreds of stray surface finds, stone implements mostly bought from the country population in villages we passed through. These specimens have only a limited value. They are not connected with any definite site. They may have been brought from long distances. For instance, when an axe approaching to the Honan type is bought near Kalgan, there is always the possibility that it may have been brought from the south. But the overwhelming majority of stone implements bought in small country places were certainly found in the immediate vicinity. In this way they outline the extent of a certain *geographical* group of stone utensils. When later on sites are discovered and specimens are found in situ, the value of the bought objects is largely augmented, as very often the purchased objects are complete and form a valuable complement to the excavated fragments.

In fact, I have included in plates 7—27 a few objects, as for instance the magne-

¹) Edman and Söderberg: «Auffindung von Reis in einer Tonscherbe aus einer etwa fünftausend-jährigen chinesischen Siedlung», Bull. of the Geol. Soc. of China, Vol. VIII, No. 4, 1929.

tite »boxing gloves» Pl. 22, 1-2, which may be of relatively recent date. Similarly we know nothing about the age of the so-called »sounding stones» Pl. 26. The axes with shaft holes, specially 20,3 may also be relatively recent. I have, however, purposely included those rare, aberrant types, as light may one day be thrown upon their nature.

With reference to the widely distributed common types like »the rounded northern axe», it should be remarked that only a few perfect specimens are reproduced here. In many cases there are ten or more specimens from the same area that are not in so perfect condition.

Sundry stone objects.

Pl. 7,1 (K 1690) This specimen was already described by me in 1923 in »Essays on the Cenozoic of Northern China P. 135 Pl. IX,1. From this memoir I quote the following description: »This implement is broken at both ends. The length in its present state is 243 mm. (when complete it must have been about 320 mm. long), greatest width 78 mm. The material is a reddish-grey felsite-like rock. It is coarsely chipped with some smaller retouches along the edges, much in the manner typical of the Solutrean »pointe en feuille de laurier». Most of the French Solutrean flints of this type seem to have been considerably smaller, 161—180 mm. long, and even less than that. But if I am not mistaken, one of eleven very large Solutrean laurel-leaf points found at Volgu had a length of 340 mm., (and an implement of the same type found on the west coast of Sweden and assigned by Montelius to the same period is 300 mm. in length.) These European implements of Solutrean age are mostly made of flint, but it seems quite possible that a dense felsite-like rock could have been used by Solutrean Man here in China where flint is not available.

These comparisons go to prove that the felsite blade from Northern China may very well be of Solutrean age. But it is very far from proved that this is the case. From the flint and obsidian quarries of Northern America W. H. Holmes has described numerous blades of types similar to the Solutrean pointes en feuille de laurier. According to such high authorities as Holmes, Hrdlicka and Wissler, America was peopled by Mongolian offshoots which crossed the Bering Strait at so late a time that those tribes had already acquired a Neolithic culture. If this conclusion is correct, it goes without saying that the American laurel-leaf-like implements are of comparatively recent date. Holmes seems to think that the quarries from which these blades were obtained continued to be worked also in post-Columbian time »until the encroachments of Europeans drove the natives from the general region or substituted other materials for the anciently indispensable flint».

It may be justified to compare this object with the »instruments agricoles» described by Licent and Teilhard »Note sur deux instruments agricoles du Néolithique de Chine» Fig 2 & 3. L'Anthropologie. Tome XXXV, 1925.

Pl. 7,2 (K 1702) This specimen together with a few others was presented to me by Rev. Beinhoff of the Mienchih mission station, Honan. According to his statement they were probably derived from Sian, the capital of Shensi.

It is a greenstone axe of strictly rectangular shape, 168 mm. in length, 65 mm. broad and 23 mm. in thickness. One of the narrow sideplanes is flat, the other slightly rounded. Only in a few places are there slight remains of the hammering action that roughly shaped

the tool. Nearly everywhere it is smoothened by grinding which in places amounts to a fair polish. The specimen has abundant lime incrustations.

Pl. 7,3 (K 1195) Chihli, Ch'ih Cheng Hsien, W 40 li, Chien Tze Ling, E 3 li, Pa Mo Ti.

This is a stone utensil of unique shape as far as my knowledge goes. The rock is dark green crystalline schist with the crystal structure parallel to the length axis of the tool. The general outline is clearly visible on the plate. The cross-section is lozenge-shaped. The entire surface spotted with a red pigment.

Pl. 7,4 (K 1669) Chihli, Wan P'ing Hsien, NW 240 li.

Chin Chuang Hu Tsun.

A large broad chisel-shaped tool. L. 197 mm., 32 mm. broad, 25 mm. wide. Dark variegated rock. The whole surface well polished.

Stone axes.

Pl. 8,1 (K 1695) Shantung, between Hsin T'ai Hsien and Yen Chuang.

A very crude stone axe shaped simply by grinding a rough edge at one end of an irregular pebble of diorite (?).

L. 208 mm. Br. 80 mm. Th. 59 mm.

Pl. 8,2 (K 963) Honan, Hsin An Hsien, bought by Rev. Maria Pettersson.

A very beautiful axe shaped from a greenish, cryptocrystalline, probably igneous rock. The shape is perfectly symmetrical and the surface beautifully smoothened.

L. 142 mm. Br. 62 mm. Th. 36 mm.

In its general shape this axe recalls the »Northern rounded axe» (see below) but its neck is very thick.

Pl. 8,3 (K 1915) Chihli, Hsuan Hua Hsien, Chui Chia Liang.

A very regular diorite (?) axe with thick neck reminiscent of the Yang Shao axe of Honan. The butt end showing only hammering action. Fore part polished.

L. 137 mm. Br. 68 mm. Th. 41 mm.

The Northern rounded axe.

Pl. 8,4 (K 318) Joho, Luan P'ing Hsien, Yin Shou Tsun, Hsiao Chia Wa.

A small elegant axe consisting of grey and dark green, mottled igneous rock. Beautiful polish. L. 122 mm. Br. 53 mm. Th. 27 mm.

Pl. 12,1 (K 1220) Joho, Chao Yang Hsien, Pa Tu Ying Tzu.

Medium-sized axe of a greenish rock with small dark spots. Probably igneous. The whole axe is gently and elegantly rounded and smoothened except the irregular neck, which is only roughly rounded. L. 207 mm. Br. 90 mm. Th. 35 mm.

Pl. 12,2 (K 29) Chihli, Hsuan Hua Hsien, S 60 li.

Tung Yao Kou, W 1 li, Yen Chia P'o.

Long slender axe with very thin neck. The whole axe perfectly rounded and polished. Cross-section elliptical, without the slightest indication of side-facets. Rock dark felsite with grey to white streaks. Slight lime incrustations.

L. 203 mm. Br. 59 mm. Th. 30 mm.

Pl. 12,3 (K 1121) Chihli, Huai Lai Hsien, SW 70 li, Shih Men Tsun.

Very slender axe of a relatively soft grey stone with small green spots. Sides with neatly cut facets, 6 mm. at the broadest. Neck very thin, forming a continuation of the side-facets. Polish everywhere good. Strong lime crust in places.

L. 170 mm. B. 63 mm. Th. 23 mm.

Pl. 12,4 (K 1867) Chihli, Hsuan Hua Hsien, E 90 li, Ming Chia Yao, E 3 li, Hua Shan.

Elegantly rounded and polished slender axe. Cross-section flat elliptical. No indication of side-facets. Neck extremely attenuated and sharpened into a secondary edge.

L. 238 mm. Br. 91 mm. Th. 31 mm.

Pl. 13,1 (K 1788) Chihli, Ku Yuan Hsien, N 100 li, Hsiao Chang, S 1 li, Tsao To Kou.

Small stout axe of hard felsite with beautiful colour-bands from black to greyish white. Neck thick, irregular. All the rest of the axe beautifully rounded and polished.

L. 105 mm. Br. 45 mm. Th. 27 mm.

Pl. 13,2 (K 1291) Mongolia. Jihi Dabbas in Gotto.

Small stout axe with thick irregular neck. Rock felsite with regular colour banding from black to greyish-white. Axe perfectly rounded and polished.

L. 99 mm. Br. 36 mm. Th. 25 mm.

Pl. 13,3 (K 185) Chihli, Hsuan Hua Hsien, E 90 li, Shao P'a Li.

Small slender axe with relatively narrow neck. Rock moderately hard, greenish grey, with slight colour-bands. Axe rounded and polished.

L. 105 mm. Br. 37 mm. Th. 26 mm.

Pl. 13,4 (K 47) Chihli, Hsuan Hua Hsien, S 30 li.

Li Shih Pu, N. 1 li, Hung Liang.

Small thin-necked axe with the edge slightly oblique (as is also the case with Pl. 13,1—3). Max. thickness in the fore part of the axe. Cross-section elliptical with slight indication of side-facet only on one side. Axe perfectly rounded and elegantly polished. Rock grey quartzite (?) with dark bands and a facet running obliquely across the axe.

L. 99 mm. Br. 44 mm. Th. 23 mm.

Pl. 13,5 (K 1886) Chihli, Hsuan Hua Hsien, Chao Chia Wan.

One of our most exquisite specimens. Small axe of black felsite with regular and minute colour-bands in grey. Neck narrow. Polish of highest order.

L. 100 mm. Br. 36 mm. Th. (in fore part) 23 mm.

Pl. 13,6 (K 1104) Chihli, Lung Kuan Hsien, Chang Ying K'o, W 1 li, Sha Mei.

Medium-sized axe of dull grey dense rock. Neck very irregular. Axe perfectly rounded and polished.

L. 131 mm. Br. 50 mm. Th. 31 mm.

This is a homogeneous type characterized by the rounded shape and the thin neck. The axes are mostly small, but we possess a real giant — by far the heaviest of our stone axes, weight 4.2 kilogrammes, length 320 mm. It bears our catalogue number K 389 and was bought in Shensi, Fu Ku Hsien, Nan Liang Shang. Apart from its size it is a typical Northern rounded axe.

Another remarkable specimen of this group is the beautiful jade axe K 10650:1 (Pl. 74,1) which is described among the jade objects. It was bought in Shansi, Hsin Hsien, N of Tai Yuan Fu.

This group of axes occupies a broad belt on the Sino-Mongolian borderland from N. Shensi in the west to Joho in the east.

The Honan axe.

As a contrast to the previous type we describe here from our excavations in the Yang Shao sites of Honan three specimens of what I call the Honan axe of well-established Yang Shao age. The three specimens in Pl. 9 all came from Mien Chih Hsien, Pu Chao Chai.

It is a heavy, square-butt weapon of broad rectangular or nearly square cross-section such as in Pl. 9,3 (K 823) Length 156 mm. width 63 mm., thickness 46 mm. Butt nearly square, 47×43 mm. Rock grey diorite.

Pl. 9,1 (K 3002: 2) L. 166 mm. W. 58 mm. Th. 44 mm. Fine-grained diorite. This is a more elongated type. Otherwise it is like K 823 in the rectangular cross-section and the square-cut butt end. Not only the edge but a large part of the axe is polished.

Pl. 9,2 (K 821) L. 205 mm. W. 63 mm. Th. 46 mm. Diabase? with microlithic spots. By far the longest of all axes from this site.

In »An early Chinese Culture» I reproduced in 1923 from the type locality Yang Shao Tsun an axe of this type E. Ch. C. Pl. VI,16.

The Pan Shan axe.

The stone axe of the Pan Shan graves is described in a later chapter »Finds of the Pan Shan hills». Pl. 63—65 and 75,1 illustrate this type profusely.

Many of these axes are rounded rectangular in cross-section, and in this feature they resemble the Honan type. However, they are much more rounded than the Honan axes and never have their heavy square-cut butt. Pl. 64,2 in its slender build, its rounded shape and thin neck actually resembles the Northern rounded axe. On the whole, we may be justified in saying that the Pan Shan axe occupies a position between the two extremes, the Honan axe and the Northern rounded axe.

Northern square-cut axe.

Pl. 14,1 (K 1297) Shansi, Pao Te Hsien, NE 30 li, Tai Chia Kou, Hsi Pien Kou.

The flaming rock of this axe is without parallel in my experience. It is dense and very hard. Its colour is variegated, changing from dark purple to yellow and yellowish grey. The axe is square-cut with slightly convex sides, which meet almost at right angles.

L. 140 mm. Br. 44 mm. Th. 26 mm.

Pl. 14,2 (K 1093) Chihli, Lung Kuan Hsien, Kou Chuang Tsun, Mo Shan.

Medium-sized axe of dark stone with distinct grain. Sides slightly convex, meeting at acute angles. Neck irregular. The rest is nicely polished.

L. 142 mm. Br. 46 mm. Th. 30 mm.

Pl. 14,3 (K 221) Chihli, Hsuan Hua Hsien, E 60 li, Yang Kou Pu, S 2 li, Huang T'u Shan.

Exceedingly slender axe. Neck so thin that the two ends are nearly similar. The four sides nearly flat, meet at sharp-edged right angles. Fine polish. Plentiful lime concretions. Dense dark-grey rock of medium hardness.

L. 151 mm. Br. 37 mm. Th. 17 mm.

Pl. 14,4 (K 1298) Shansi, Pao Te Hsien, NE 30 li, Tai Chia Kou, Hsi Pien Kou.

This is another specimen of highly coloured hard rock, and it should be noted that the previous one, Pl. 14,1, comes from the same place in Pao Te Hsien. This has the structure of a multicoloured conglomerate, the minute pebbles of which exhibit the same multitude of colours from deepest dark purple to yellowish grey, as in 14,1. Possibly both varieties are of a very hard volcanic agglomerate.

Neck square-cut. The two broad sides slightly convex.

L. 103 mm. Br. 48 mm. Th. 17 mm.

Pl. 15,1 (K 21) Chihli, Hsuan Hua Hsien, Hsia P'o Ti, Nan Liang.

A small axe of greenish-grey rock. Broadest and thickest in the front part. The neck is exceedingly thin. Good polish.

L. 72 mm. Br. 40 mm. Th. 18 mm.

Pl. 15,2 (K 19) Chihli, Hsuan Hua Hsien, S 70 li.

Sheng Chia Chuang, W 4 li, P'ing Ti.

Small, very heavy axe. Broadest and thickest in the fore half. Neck irregularly square cut. Good polish.

L. 80 mm. Br. 37 mm. Th. 25 mm.

Pl. 15,3 (K 1681) Chihli, Mi Yün Hsien, NE 70 li, Hsiao T'o Chuang, W 2 li, Hu Chia P'ing.

A small, straight-cut, chisel-shaped axe of hard dense black rock. Fine polish.

L. 65 mm. Br. 27 mm. Th. 9 mm.

Pl. 15,4 (K 192) Chihli, Hsuan Hua Hsien, E 70 li, T'ang Chia Chuang, S 3 li, Mao Tsao Shan.

A heavy axe like Pl. 15,2. Largest breadth and thickness at the centre of the axe. Neck very regularly square-cut. Good polish.

L. 73 mm. Br. 41 mm. Th. 20 mm.

Pl. 15,5 (K 150) Chihli, Hsuan Hua Hsien, S 60 li.

Hsia P'o Ti, N 1 li, T'u Kou.

Small axe of black rock like Pl. 15,3 but broader. Everywhere the edges are more rounded than is the case with the strictly straight-cut Pl. 15,3.

L. 70 mm. Br. 26 mm. Th. 13 mm.

Pl. 15,6 (K 1801) Shansi, T'ai Yuan Fu, bought.

A chisel-shaped axe like Pl. 15,3 and 5, but larger and consisting of a brecciated, variegated rock in colours from light grey to almost black. Edges slightly more rounded than Pl. 15,5.

L. 101 mm. Br. 29 mm. Th. 15 mm.

Pl. 15,7 (K 26) Chihli, Hsuan Hua Hsien, Tsai Chia Chuang, Hsi Liang.

An axe like Pl. 15,2 & 4 but larger and relatively less thick. Hard black rock. Perfect polish.

L. 102 mm. Br. 45 mm. Th. 22 mm.

The Pen.

In «An early Chinese culture» (Pl. IV,1) I reproduced and described an adze which I was able to connect with the Chinese carpenter's «Pen». This utensil later proved to be one of the most common stone finds in the sites of the Honan Yang Shao. In fact Yang Shao Tsun and Pu Chao Chai abound in them.

Some stray specimens from Honan are here described together with two specimens from Kansu and two from northern Chihli. The Pen seems to be one of our most widely distributed stone implements.

Pl. 10,1 (K 949) Honan, Hsin An Hsien, bought by Rev. Maria Pettersson.

A rather stout adze of dark-green cryptocrystalline igneous (?) rock. All the sides, and the back also, worked flat through grinding and polishing.

L. 92 mm. Br. 48 mm. Th. 24 mm.

Pl. 10,2 (K 2048) Honan, Ho Yin Hsien, W 23 li, Sung Kou.

Miniature Pen or chisel of dense greenish-gray rock. All the facets of this small object are ground and polished flat to perfection.

L. 22 mm. Br. 15 mm. Th. 7 mm.

Pl. 10,3 (K 1602) Honan, Mien Chih Hsien, N. 12 li, Lin Kou. Stout adze of dark microcrystalline rock. Sides slightly rounded but well ground and polished.

L. 90 mm. Br. 49 mm. Th. 25 mm.

Pl. 10,4 (K 1687) Chihli, Wan P'ing Hsien, SW 240 li, Chin Chuang Ho.

Long slender, asymmetrical chisel of beautifully banded dense rock. Bands strictly parallel with the longitudinal axis of the chisel. All the facets perfectly smooth not only from polishing but also from long use.

L. 58 mm. Br. 17 mm. Th. 12 mm.

Pl. 10,5 (K 1294) Honan, Hsin An Hsien, WNW 12 li, Kao P'ing Chai.

Very broad adze of dense, dark variegated brown to greenish rock. Beautifully smoothed.

L. 54 mm. Br. 52 mm. Th. 11 mm.

Pl. 10,6 (K 1458) Kansu, Nien Po Hsien, Ma Chang Yen.

Chuang digging 1924.

Pleasingly smooth chisel with irregular back. Deep, reddish-brown, slightly porphyric rock.

L. 63 mm. Br. 28 mm. Th. 11 mm.

Pl. 10,7, (K 1953: 1) Honan, Mien Chih Hsien, N 15 li, Shao Yung Tsun.

Stout adze of crystalline, variegated black to grey rock.

L. 81 mm. Br. 52 mm. Th. 20 mm.

Pl. 10,8 (K 1612) Kansu, Ti Tao Hsien, Ssu Wa Shan, bought.

Elegantly polished adze of dark, dense rock. The specimen is perforated with a cylindrical hole.

L. 91 mm. Br. 44 mm. Th. 14 mm.

Pl. 11,5 (K 135) Chihli, Hsuan Hua Hsien, S 40 li. Kao Cheng.

Pen formed by grinding down an axe, the hammered shape of which is still largely visible. Rock a hard yellowish agglomerate.

L. 90 mm. Br. 49 mm. Th. 21 mm.

Slender chisels.

Pl. 11,1 (K 197) Chihli, Hsuan Hua Hsien, Ling Men.

Slender, very slightly asymmetrical chisel of dark, greenish, dense rock.

L. 85 mm. Br. 37 mm. Th. 12 mm.

Pl. 11,2 (K 1207) Chahar, Chang Pei Hsien.

Slender, markedly asymmetrical chisel with very narrow rounded neck. Dense, dark, spotted rock.

L. 98 mm. Br. 37 mm. Th. 10 mm.

Pl. 11,3 (K 112) Chihli, Hsuan Hua Hsien, Hung Shui Kou.

Asymmetrical chisel of black, dense rock. One side ground flat, the other rounded.

L. 79 mm. Br. 42 mm. Th. 15 mm.

Pl. 11,4 (K 262) Joho, Cheng Te Hsien, Lu Han T'ang, Chiu Tung Shan.

Asymmetrical chisel of trapezoidal shape. One side flat, the other rounded. Dark, dense rock.

L. 60 mm. Br. 48 mm. Th. 10 mm.

Pl. 11,6 (K 1001) Joho, Cheng Te Hsien, Po Li Shou.

Like 11,2 but symmetrical and thicker. Dense dark rock with beautiful colour band.

L. 85 mm. Br. 36 mm. Th. 18 mm.

These fine stone utensils are for want of a better term here named »chisels». 1—4 are slightly asymmetrical and might be called thin adzes. 6 has a symmetrical edge but resembles 2 in outline.

Among the Pan Shan stone objects there are four, Pl. 68, which are termed thin adzes. They are all much larger than those described above. Pl. 68,1 and 2 from Pan Shan resemble Pl. 11,4 from Joho.

Large perforated chisels.

Pl. 16,1 (K 1604) Kansu, Yü Chung Hsien, bought.

Exceptionally long, slender, straight chisel-shaped object of dark hard rock. Neck irregularly square-cut.

Near the neck there is a biconical hole, very wide — 30 mm. at the mouth, but only 5 mm. at the centre. The wider parts are made by hammering, but there are slight traces of boring at the centre.

L. 272 mm. Br. 59 mm. Th. 24 mm.

Pl. 16,2 (K 1605) Kansu, Yü Chung Hsien, bought.

Thin chisel-shaped object of dark schist. Neck very thin. At a little less than one fourth of the length measured from the neck there is a biconical perforation, the wider part of which is very irregular and formed by hammering. The central part, formed by boring, is strictly regular.

L. 229 mm. Br. 59 mm. Th. 17 mm.

Pl. 16,3 (K 970) Honan, Hsin An Hsien, bought by Rev. Maria Pettersson.

Chisel-shaped greenstone object of rectangular cross-section. Near the neck there are, from both sides the beginnings of a perforation, which was never completed.

L. 188 mm. Br. 66 mm. Th. 20 mm.

Broad perforated axes with square neck.

Pl. 17,1 (K 1224) Joho, Chao Yang Hsien, Mon Kou Ying Tzu.

Axe of a beautiful greenish-grey rock with dark spots and stripes. The axe is much broader in front than at the neck (86 and 66 mm. respectively). Just behind the centre there is a large biconical perforation. The entire axe including the hole is beautifully polished. The edge shows marks of long wear.

L. 129 mm. Br. 86 mm. Th. 14 mm.

Pl. 17,2 (K 969) Honan, Hsin An Hsien, bought by Rev. Maria Pettersson.

Heavy diabase axe, strongly incrustated. At the butt end of the axe a broad perforation (23 mm. in centre) formed probably only by hammering.

L. 122 mm. Br. 103 mm. Th. 19 mm.

Pl. 17,3 (K 2045) Kansu, Ti Tao Hsien, Ssu Wa Shan, Skeleton 1.

Axe of grey rock, rectangular in outline. At the butt end a biconical perforation.

Pl. 17,4 (K 175) Chihli, Hsuan Hua Hsien, S 60 li. Shang P'o Ti.

Axe of grey sandstone. At the butt end a biconical perforation, formed partly by hammering, partly by boring.

L. 109 mm. Br. 77 mm. Th. 14 mm.

Pl. 18,1 (K 10620:3) Shansi, T'ai Yuan.

Axe of light grey rock with black spots. At the butt end a large biconical hole. High polish.

L. 101 mm. Br. 72 mm. Th. 13 mm.

Pl. 18,2 (K 1660) Chihli, Yü Hsien, T'ao Hua Pu, Chien Tze Ho.

Axe of greenish-grey rock with minute black spots. Just behind the centre a large biconical hole. Polish good.

L. 90 mm. Br. 67 mm. Th. 18 mm.

Pl. 18,3 (K 3212) Honan, Ho Yin Hsien, Chih Kou Chai.

Axe of greenish-grey porphyritic rock. Lime incrustations. Near the neck a large biconical hole.

L. 104 mm. Br. 77 mm. Th. 13 mm.

Pl. 18,4 (K 2046) Kansu, Nien Po Hsien, Ma Chang Yen.

Axe of grey rock with large white porphyry crystals. At the butt end a biconical hole.

L. 122 mm. Br. 72 mm. Th. 19 mm.

When a jade specimen of this type from Shensi was reproduced by Laufer «Jade» Pl. IV, he named it «Jade chisel of Chou period». The name chisel does not seem very appropriate for such a broad instrument. I have here named them «axes», which is also a purely conventional term as these things were very likely not utility objects at all but rather served some ceremonial purpose.

Laufer's determination of the age as Chou means very little. At that time (1912) Yin and prehistoric periods had not yet been made the objects of scientific discussion.

At present much new evidence is at our disposal. In the monograph on the Cheng-Tzu-Yai site in Shantung, Pl. XXXV, 3, 4, 6, objects of this type are reproduced as occurring in the prehistoric Lung Shan culture.

In our plates 17 & 18 we have one specimen Pl. 17,3 from Kansu, Ti Tao Hsien, Ssu Wa Shan, Skeleton 1, a stage of the Late Bronze Age.

Pl. 18,3 is from Honan, Ho Yin Hsien, Chih Kou Chai, a site of advanced Yang Shao age.

Pl. 18,4 is reported to have come from Kansu, Nien Po Hsien Ma Chen Yen.

From Pu Chao Chai in Mien Chih Hsien, Honan, we have six fragments of this type, all of them incrustated.

From Yang Shao Tsun, the type locality of the Yang Shao stage, we have five fragmentary specimens, all incrustated. One of them Pl. 74,2 (K 738) is cut in dark impure jade.

It is true that none of these Kansu and Honan specimens was excavated by me personally. In all these cases they were found by my Chinese collectors, but the cumulative evidence seems to prove that this type of axe was widely distributed in the prehistoric sites of Shantung, Honan and Kansu.

Similar objects, but elaborately worked were found in Anyang. These parallels will be reviewed in chapter 29, «The Yang Shao culture compared with historic China».

Broad perforated axes with round neck.

Pl. 19,1 (K 1876) Chihli, Hsuan Hua Hsien, I Ho Chuang.

Slender axe of grey felsite with dark bands. Near the butt end there is a cleanly cut hole, at first sight cylindrical but in fact slightly uniconical, 10 mm. at one end and 8 mm. at the other. Very graceful polish.

L. 139 mm. Br. 73 mm. Th. 18 mm.

Pl. 19,2 (K 1933) Chihli, Hsuan Hua Hsien, Nan Pu Kou, Hou Shan Kou.

Rather massive axe of greenish-grey rock. The neck is rounded at the sides but square-cut in the centre. Near the butt end there is a wide hole bored from both sides. Moderate polish.

L. 113 mm. Br. 58 mm. Th. 24 mm.

Pl. 19,3 (K 313) Joho, Luan P'ing Hsien, Ta P'u, Mao Chia P'ing.

Axe of the same kind of felsite as 19,1. Carefully shaped but no polish. The hole bored from both sides.

L. 135 mm. Br. 74 mm. Th. 20 mm.

Pl. 19,4 (K 1265) Joho, Chao Yang Hsien.

Fragment of ceremonial axe (?) of whitish-yellow soft rock. Hole bored from both sides. This hole is interesting as showing, through deep marks of wear visible in the figure, that the object has for long periods been carried as a pendant. The upper end asymmetrically sharpened to an edge.

This seems to be a purely northern type confined to the Sino-Mongolian borderland.

Axes with shaft-hole.

Pl. 20,1 (K 239) Chihli, Hsuan Hua Hsien, E 70 li, Yang Chia Yin, S 1 li, Nan T'u Ko Ta.

Fore (?) part of greenstone axe with a big shaft-hole.

Pl. 20,2 (K 370) Shensi, Fu Ku Hsien, Wan Chia Kou.

An axe of very elaborate shape. The middle part bulges out round the large shaft-hole, the fore part is attenuated and the neck is shaped into four facets.

Pl. 20,3 (K 1193) Chihli, Chih Cheng Hsien, W 30 li, Hsiao Lin, E 2 li, Ching Sha Ho.

Axe with middle part bulging out round the shaft-hole. Upper and lower sides straight.

A stone Ko.

Pl. 20,4 (P 11214) Chihli, Lung Kuan Hsien, T'ang Chih K'ou.

This important specimen was already described in 1923 in «An early Chinese culture» P. 46, Pl. V,1 But the reproduction given there was only a line drawing, and I think it proper to give here good photographic reproductions of this remarkable object.

Cut in a green, fine-grained, probably metamorphic rock, it is a short and massive, though in all essentials typical, early representative of the weapon Ko, which was made of bronze and played such an important part in the early Chinese dynasties. The method of hafting, the relationship to the bronze Ko and the development of this weapon are already outlined in «An early Chinese culture».

L. 113 mm. Br. 65 mm. Th. 29 mm.

A giant stone ring.

Pl. 20,5 (K 3217) Chihli, Lung Kuan Hsien, Hsi Wa Yao Chang.

One half of a very heavy stone ring with T-shaped cross-section. The material is a very coarsely crystalline diorite, in which the white plagioclase contrasts beautifully with the greenish black hornblende. One side shows heavy lime-incrustation.

The cross-section has a very broad and full T-shape. The cutting is rather irregular. In the chapter 'The Yang Shao culture compared with historical China' we shall discuss the affinities of this unique specimen to similar jade rings of historic times.

When complete this stone ring had a diameter of 150 mm. The central hole is slightly eccentric, 54 mm. in diam. Thickness 31 mm.

Aberrant types of axes.

Pl. 21,1 (K 1213) Joho, Sui Tung Hsien, Kung Yun Ssu.

The fore part of a greenstone axe, the characteristic feature of which is the pointedly oval edge. As the nature of the butt end is unknown, we are not able to place it in any known group of axes.

Pl. 21,5 (K 5) Chihli, Hsuan Hua Hsien, Ku Tsun.

This is an entirely unique type of axe. The material is a fine-grained, nearly black igneous rock. The neck is square cut, as are also the sides of the butt end of the axe. A little in front of the middle of the axe there is, on both sides, a narrow shoulder. From here forwards the axe is broader with rounded sides. A little behind the centre of the axe there is, upon one side, a shallow depression clearly visible in the figure.

L. 123 mm. Br. 71 mm. Th. 34 mm.

Pl. 21,6 (K 78) Chihli, Hsuan Hua Hsien, Ku Cheng Tsun.

Diorite axe of unique shape, shouldered in the rear, rounded part.

L. 113 mm. Br. 55 mm. Th. 25 mm.

Mace head.

Pl. 21,4 (K 130) Chihli, Hsuan Hua Hsien, W 25 li, Chai Shan Kou.

Perforated object of grey quartzite in the shape of an 8-pointed star with a hole in the centre. May have served as a mace-head. Similar, though less regular, objects have come into our possession from the Sino-Mongolian border land. Diameter between the most projecting points 102 mm. Diam. of hole 18 mm.

Objects of unknown use.

Pl. 21,3 (K 1614) Kansu, Ti Tao Hsien, Ssu Wa Shan. Bought.

Stone object of unknown use. Brownish-red spotted limestone. This elegantly shaped and polished object has approximately the shape of a solid cylinder, but the end surfaces are bulgingly convex, whereas the 'cylindrical' surface is regularly concave.

Height 70 mm. Diam. 75 mm.

Pl. 21,2 (K 1615) Kansu, Ti Tao Hsien, Ssu Wa Shan. Bought.

A specimen like Pl. 24,3 but cut in porphyric granite. The fact that the concave-cylindrical surface is rough and rugged, whereas the convex end-surfaces are smoothened, seems to indicate that these objects were some kind of polishing instruments.

Height 75 mm. Diam. 78 mm.

Pl. 22,1 (K 1229) Joho, Chao Yang Hsien. Shih Pa Li Tai.

A small heavy object cut in magnetite. Work perfect and surface pleasingly smooth.

Cross-section triangular with two sides straight and the third one strongly convex. The convex side is elegantly worked into seven concave facets separated by six regular sharp ridges.

This object fits so well into the clenched hand that it is tempting to think that it was a kind of boxing-glove intended to give more weight to the blow.

Length 74 mm.

Pl. 22,2 (K 1228) Joho, Chao Yang Hsien, Kuang Fu Ying Tzu.

Magnetite object, as smooth and as well worked as the preceding one. This one is bean-shaped with a furrow transversely across the back. The cross-section shows a narrow bottom, two diverging sides and the highly curved back.

P. 22,3 (K 312) Joho, Luan P'ing Hsien, Ta P'u.

A unique object cut in a rather soft grey crystalline rock. This specimen is framed by six rectangles, two long and broad, two long and narrow and two short and narrow. All these rectangles are slightly convex, giving to the object a gently bulging shape. One of the large sides alone carries a slightly asymmetrically placed straight furrow. The shape has been attained by hammering without any trace of polishing action.

As already indicated, this object stands quite alone among all our finds. The square-cut shape and the transverse furrow give it a likeness to the grooved hammers known from other parts of the northern hemisphere, but this likeness is hardly conclusive.

L. 109 mm. Br. 81 mm. Th. 53 mm.

Pl. 22,6 (K 314) Joho, Luan P'ing Hsien, Ta Pu, Mao Chia P'ing.

A «grooved axe» of grey quartzite. It seems as if a smoothly worn pebble had been hammered and reshaped by forming the square neck and the broad groove, which latter is discontinued on the underside.

There is a general likeness to the grooved diorite axe from Shantung illustrated by Laufer in «Jade» Pl XIII, 1, but in the Shantung specimen the groove is much deeper.

L. 135 mm. Br. 65 mm. Th. 58 mm.

Pl. 22,5 (K 3216) Kansu, Kuei Te Hsien. The specimen is marked «Ch 1», what means Chen's first locality close to the village of Lo Han T'ang.

This is a fragment in regard to which I can offer no interpretation. The whole surface is shaped by hammering. The upper part (as placed in Pl. 22) has approximately the shape of a shoulder-blade. It is 30 mm. thick and ends in an obtuse one-sided edge likewise shaped by hammering.

The lower part is only a fragment which once had a large central hole something like the hole of the axe in Pl. 20,2. What was beyond that hole remains unknown, and we can therefore formulate no opinion as to the true nature of this stone implement.

Pl. 22,4 (K 1633) Kansu, Yü Chung Hsien. Bought.

A broad ring of white marble with a surface tint in yellow. The ring is fairly well polished both inside and outside.

The inside is straight cylindrical, the outside convexely cylindrical. Consequently the ring is much thicker in the middle, 10 mm., as compared with 5 mm. near the margin. Breadth 88 mm. Diam. 77 mm.

Fragments of similar, though less broad rings, were found during our excavations in the Lo Han T'ang site, Kuei Te Hsien.

Stone hoes.

Pl. 23,1 (K 3185) Honan, Ho Yin Hsien, Chi Kou Chai.

Hoe of grey limestone, with thin edge and square-cut back. Wedge curved, polished by wear. L. 232 mm. Br. 85 mm., Th. 20 mm. Heavy lime incrustation.

Pl. 23,2 (K 971) Honan, Hsin An Hsien, bought by Rev. Maria Pettersson.

Long and slender hoe of dark limestone. The whole instrument smoothened by grinding. Wedge-part only slightly curved, highly polished by wear. Heavy lime incrustations.

L. 317 mm. Br. 101 mm. Th. 18 mm.

Pl. 23,3 (K 182) Honan, Ho Yin Hsien, Chin Wang Chai.

Hoe of dark limestone. Butt end with one side narrow, probably to afford a good grip for the hand.

Wedge-part very distinctly curved. The whole instrument highly polished by long wear.

L. 230 mm. Br. 98 mm. Th. 20 mm.

Pl. 23,4 (K 3186) Honan, Ho Yin Hsien, Chin Wang Chai.

Small rectangular hoe of variegated limestone. Wedge-part slightly curved. Instrument polished by long wear.

L. 179 mm. Br. 63 mm. Th. 15 mm.

Pl. 24,1 (K 1699) Locality unknown, probably Honan.

Small hoe of hard, dark dense rock. Handle-part narrow. The whole instrument much worn.

L. 162 mm. Br. 63 mm. Th. 17 mm.

Pl. 24,2 (K 3183) Honan, Ho Yin Hsien, Niu K'ou Yü.

Small hoe of black limestone. Handle-part narrow to afford a handy grip. The whole instrument, including grip, polished by long wear.

L. 152 mm. Br. 97 mm. Th. 14 mm.

Pl. 24,3 (K 1272) Joho, Chao Yang Hsien.

Very small hoe of dense grey, spotted rock. Handle-part narrow. The whole instrument smoothened by wear.

L. 125 mm. Br. 74 mm. Th. 8 mm.

Pl. 24,4 (K 3184) Honan, Ho Yin Hsien, Chih Kou Chai.

Rectangular hoe of grey limestone. Heavy lime incrustation.

L. 218 mm. Br. 93 mm. Th. 23 mm.

Pl. 24,5 (K 979) Honan, Hsin An Hsien. Bought by Rev. Maria Pettersson.

Broad hoe of dark crystalline schist. Back probably broken. Instrument polished by much wear.

L. 187 mm. Br. 126 mm. Th. 14 mm.

Pl. 24,6 (K 3181) Honan, Ho Yin Hsien, Chih Kou Chai.

Broad hoe (?) of grey limestone. An edge round the convex part, back square-cut.

L. 158 mm. Br. 201 mm. Th. 12 mm.

Pl. 25,1 (K 1097) Chihli, Lung Kuan Hsien, SW 80 li, Yao Tze Kou, W 4 li, Ching Wan.

Hoe of the broad northern type. Grey dense rock. Handle-part can be held with one hand. Edge much worn.

L. 211 mm. Br. 182 mm. Th. 18 mm.

Pl. 25,2 (K 1038) Joho, Cheng Te Hsien, N 40 li, Huang T'u K'an, S 1 li, Wen Shou Hsia.

Broad hoe of diorite(?) Edge worn. L. 145 mm. Br. 173 mm. Th. 22 mm.

Pl. 25,3 (K 1039) Joho, Cheng Te Hsien, N 40 li, Huang T'u K'an, S 1 li, Wen Shou Hsia.

Broad hoe of reddish igneous rock. Edge worn.

L. 133 mm. Br. 216 mm. Th. 25 mm.

Pl. 25,4 (K 152) Chihli, Hsuan Hua Hsien, Yü Chia Ta Ti.

Very heavy broad hoe. Hard grey igneous rock. Wedge shaped by two natural joint-planes. Handle shaped by hammering.

L. 177 mm. Br. 220 mm. Th. 34 mm.

Among the hoes reproduced in plates 23—25 we can easily distinguish two geographical groups. One is represented by all the specimens shown in Pl. 23 and Pl. 24, 2 & 4. They are all made from slabs of limestone. Most of them are long and slender, chisel-shaped. Four of them, 23,1, 3, 4 and 24,4, came from the Ho Yin sites of advanced Yang Shao age.

Fragments of this type were also found in the Yang Shao Tsun and Pu Chao Chai sites, so that it is safe to say that they form a characteristic feature of the Honan Yang Shao culture.

The other type of hoe is represented by four specimens, Pl. 25. They all consist of hard crystalline rock and belong to the Sino-Mongolian borderland.

»Sounding-stones».

Pl. 26,1 (K 1148) Chihli, Huai Lai Hsien, SW 80 li, Huang Lu Tsun, Ho Chia Wa.

Small sounding-stone with only two holes. Rock grey quartzite. Length 205 mm. Width 144 mm. Thickness 16 mm. Diam. of holes 15 mm. Holes as well as the entire stone plate showing signs of considerable wear.

Pl. 26,2 (K 1149) Chihli, Huai Lai Hsien, SW 80 li, Huang Lu Tsun, Hou Liang.

Long sounding-stone with two holes. Gray, thin-bedded quartzitic rock. L. 273 mm. Br. 136 mm. Th. 15 mm. Diam. of holes 15 mm.

Pl. 26,4 (K 151) Chihli, Hsuan Hua Hsien, Shih Chia Chai.

Sounding-stone with four holes. Grey, slaty quartzite. L. 279 mm., Br. 167 mm., Th. 16 mm. Diam. of holes 15—17 mm.

Pl. 26,3 (K 153) Chihli, Hsuan Hua Hsien, SE 60 li, Ching Ning Pu, N 1 li, Pei P'o.

Grey, thin-bedded slaty quartzitic rock.

L. 271 mm., Br. 161 mm., Th. 17 mm.

Diam. of upper holes 9, resp. 14 mm., lower holes 22 mm. Holes bi-conical. Outer edges show considerable wear.

It should be noted that these objects all came from the Sino-Mongolian borderland.

Methods of prehistoric boring.

Among our stone axes there are several, especially those that are broken, which offer excellent opportunities for studying the methods used by the prehistoric tribes of Northern China for making holes in their stone implements. Some of these specimens deserve mention here.

Pl. 27,1 (K 1017) Joho, Cheng Te Hsien, Nien Tze Kou, Ssu Li Wan.

A small square-cut axe of a crypto-crystalline grey rock.

At the butt end there are borings made from opposite sides intended to meet and form a hole, but the work was never completed. The axe is 20 mm. thick and the unfinished interspace is only 5 mm. All the work was done by hammering, as there is no trace of a rotary action.

Pl. 27,6 (K 1245) Joho, Feng Ning Hsien, An Chia Tsun, San Chang Ti.

The fore part of a greenstone axe, broken across the part where the hole was being made. The hole was begun from both sides, only the initial shallow holing being done with a hammer. The axe is 19 mm. thick.

Pl. 27,3 (K 1656) Chihli, Lung Kuan Hsien, Li Chia Yao, Sha Ho.

Fragment of rounded axe with square neck. Broken in the process of boring. Thickness of axe 35 mm. Unfinished part 7 mm. Boring very broad, surface smooth.

Pl. 27,4 (K 1087) Chihli, Lung Kuan Hsien, San Ch'a K'o, Feng Huang Shan.

In this case a thick (22 mm.) rounded axe of dark crypto-crystalline rock has been bored all through from opposite sides. The outer half, which is very broad, was done by hammering but the inner half was completed by rotary boring, as is clearly shown in the figure.

Pl. 27,5 (K 1691) Fengtien, Ching Hsi Hsien, Fu Lung Shan, Hsi Ling.

Fragment of a flat axe of dark fine-grained rock. Boring complete, biconical, outer part hammered, innermost part executed by rotary boring. Outer diameter of hole 24 mm., diam. in centre 9 mm.

Pl. 27,8 (K 1975) Honan, Mien Chih Hsien, Yang Ho Tsun.

Fragment of flat marble axe. Completed bi-conical boring, begun by hammering, completed by rotary action. Outer diam. of hole 29 mm., central diam. 13 mm.

Pl. 27,2 (K 138) Chihli, Hsuan Hua Hsien, Kao Cheng.

Broad, flat axe of grey hard rock.

The thickness of the axe is 11 mm. 7 of these are bored from one side, evidently with a technique different from any described above. The hole is steeply conical. The remaining 4 mm. are bored from the other side in a crude way.

Pl. 27,7 (K 1595) Honan, Mien Chih Hsien, Hsi T'ien T'an.

Fragment of flat heavy axe of hard dark-grey rock with yellowish-green tinge. Here the boring is like that in 27,2, steeply conical, but in this case tending to cylindrical. Only half of the thickness is bored through, and in the bottom there remains part of a stone core. The boring instrument was most probably a hollow bone, and sand the abrasive agent.

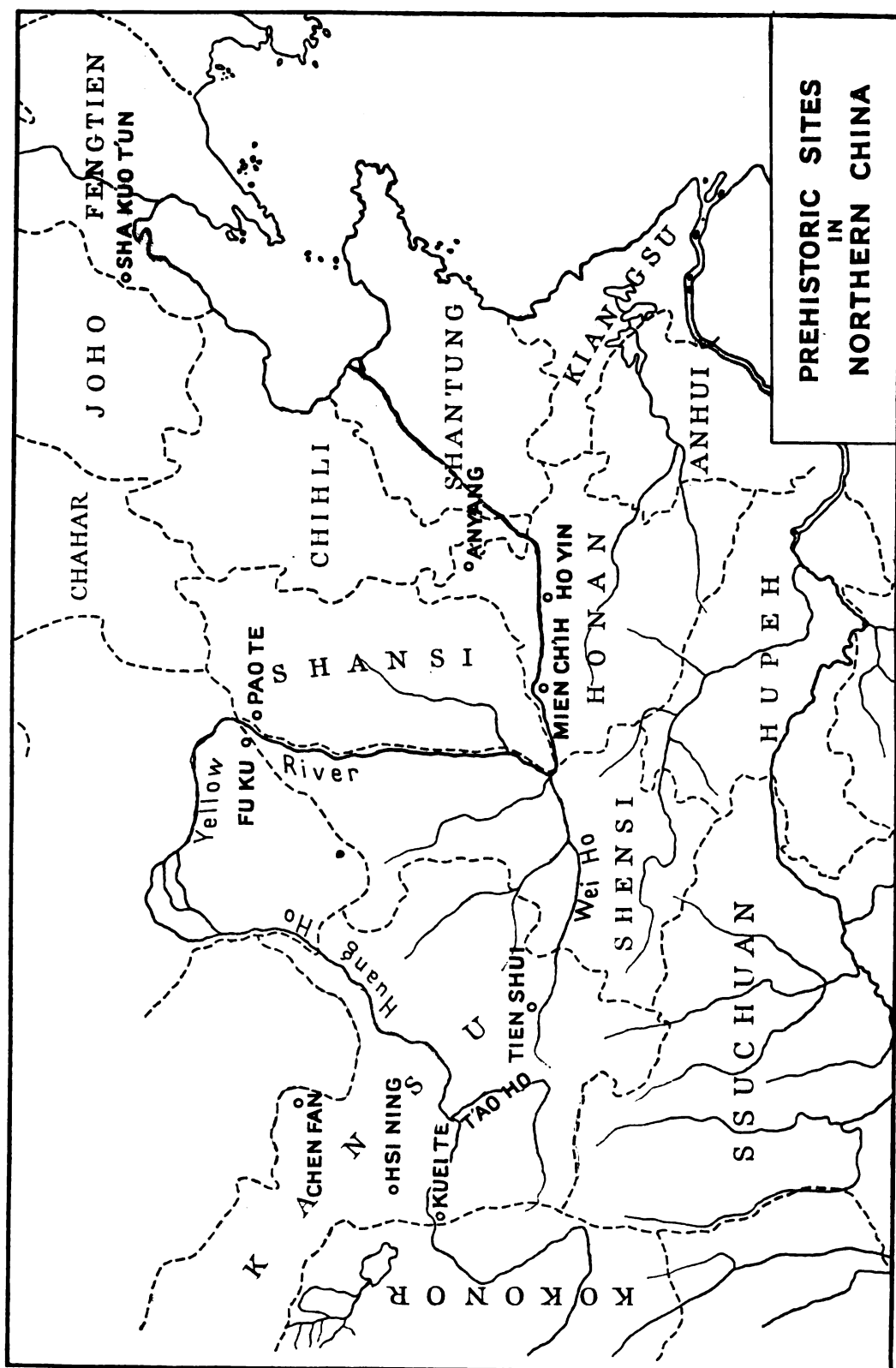


Fig. 17.

EXPLANATION TO THE MAP FIG. 17.

This map serves only for general orientation.

In fat-faced type the main centres of research are indicated.

Anyang, near the centre of the map, indicates both the earliest dynastic site — of world-wide fame — and several nearby prehistoric sites.

Sha Kuo T'un (upper right) is the cave-deposit described in 1923.

T'ao Ho (left) is the valley immensely rich in prehistoric sites.

Chen Fan, Hsi Ning, Kuei Te, Tien Shui, Fu Ku, Pao Te, Mien Chih and Ho Yin are district names to which the word Hsien in each case should be added.

For the Mien Chih and Ho Yin sites there is a special map fig. 18.

For the T'ao Ho valley there is an orientation map fig. 21.

Such orientation maps there are also for Chen Fan, fig. 70 and for Hsi Ning, fig. 39.

Tien Shui is the centre of the sites in S. Kansu, described in chapter 11.

Pl. 27 illustrates two different methods of boring. Fig. 2 and 7 show boring of nearly cylindrical holes with a hollow instrument.

Fig. 1 and 6 show the beginning of a bore done by hammering on a broad area. Fig. 4 shows the hammering replaced by rotary boring, which also makes the hole broadly conical.

These examples in no way exhaust the varied ways of prehistoric boring. There are instances in which the hole seems elegantly cylindrical, as in Pl. 19,1, though even here it is slightly conical, 11 mm. on one side, and 9 mm. on the other.

How the cylindrical hole in Pl. 22,4 was made we can only guess. But we know nothing about the utensils and the abrasive which those ancient artisans used for cutting their jade Yuan rings. When we study the mussel-shell rings of the Sha Kuo T'un cave we can only marvel at the care and skill of the men who cut these slender rings out of such brittle material.

7.

BLACK POTTERY AND EGGSHELL.

THE BLACK POTTERY.

Our description of the furniture of the various sites should begin with the Yang Shao sites of Honan. Exhaustive monographs on the voluminous monochrome pottery of Pu Chao Chai and Yang Shao Tsun have been prepared by me and will be published in due course. These sites were among the first to be discovered, and two publications followed rapidly upon our excavations.

One is my »An Early Chinese Culture«. (E. Ch. C). Geol. Survey of China. Bulletin 5. 1923. P. 1—68.

The other is Arne's: »Painted Stone Age Pottery from the province of Honan, China«. Paleontologia Sinica. Ser. D. Vol. I. Fasc. 2. 1925.

For comparison I also reproduced four Yang Shao Tsun sherds in »The Cave-Deposit at Sha Kuo T'un«. Palaeontologia Sinica. Ser. D. Vol. I. Fasc. 1. 1923. Pl. XII, 1—4.

My »Early Chinese Culture« and Arne's »Painted Stone Age Pottery« also contain richly illustrated reviews of the furniture in the Ho Yin Hsien sites (Chih Kou Chai, Niu K'ou Yü and Chin Wang Chai).

In »E. Ch. C.« is also presented a selection of stone and bone implements found in the Yang Shao Tsun site.

The selections of Honan material published in these volumes are sufficient for our present purpose. In the hope that the reader will be able to consult those publications I herewith present lists for each area of the objects published in the said works.

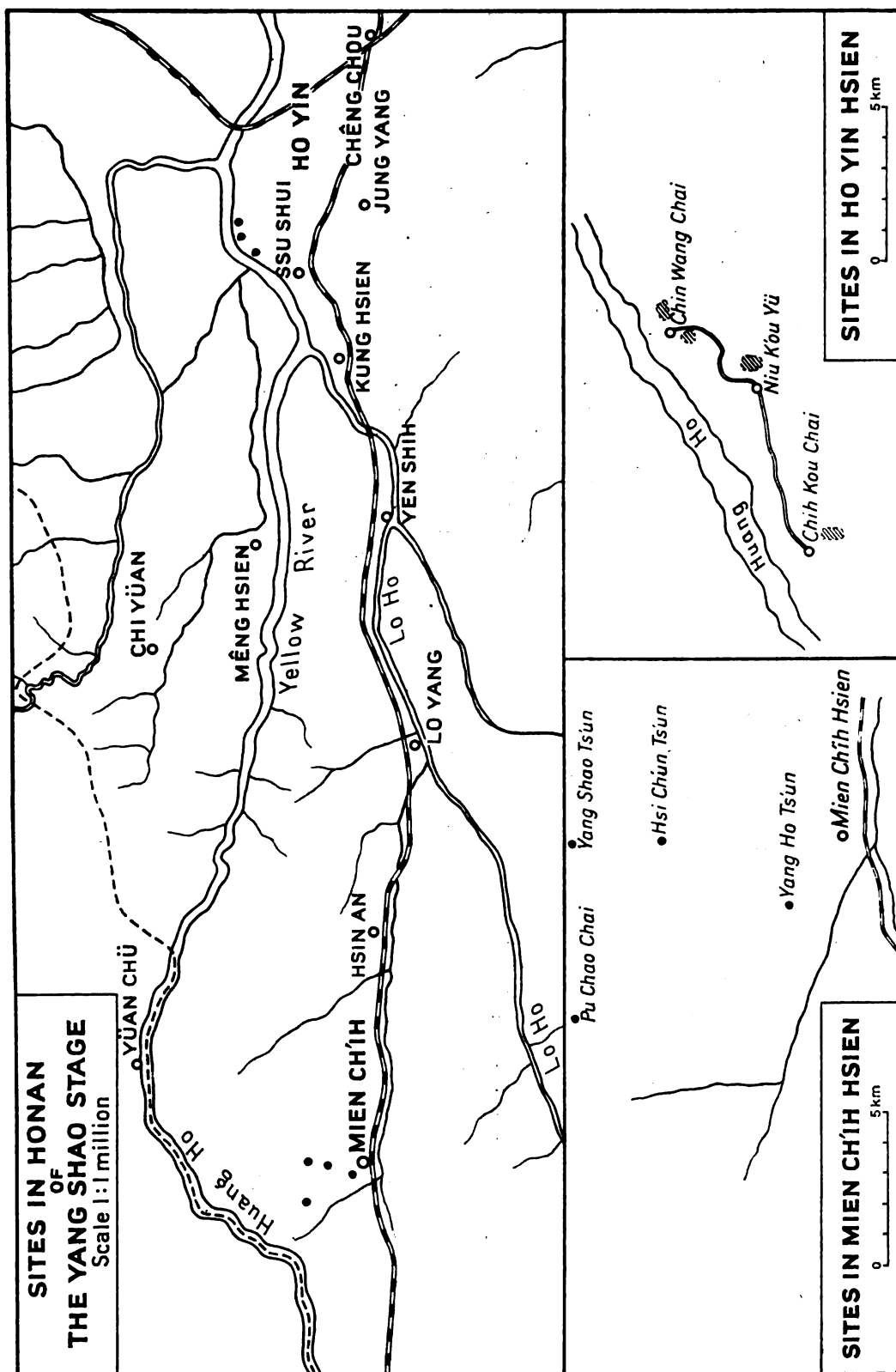


Fig. 18.

Yang Shao Tsun:

- E. Ch. C. Pl. I, 1. Rectangular stone knife.
 Pl. IV, 1. Greenstone Pen.
 Pl. VI. All the axes, Pen etc. of stone. The rings, arrow points, spinning whorl and sling stone came from Yang Shao Tsun. Only the bone needles came from another locality.
 Pl. VII, 1—5. Unpainted pottery.
 Pl. IX—XII. Painted pottery.
 Pl. XIII, 1—2, 4, 7. Painted pottery.
 Pl. XIV, 4. Painted vessel.
 Pl. XV, 2—5, 7. Unpainted vessels.
 Pl. XVI, 2—4, 6—7. Unpainted vessels.
 Pl. XVII, 2—3. Unpainted vessels.

- Arne: Paint. Pott. Pl. III, 3—6. Painted pottery.
 Pl. IV, 7—9. Painted pottery.
 Pl. VI, 16—17. Painted pottery.
 Pl. VII, 21, 24—25. Unpainted pottery.
 Pl. VIII, 29. Bowl.
 Pl. IX, 30 a. Unpainted sherd.
 Pl. IX, 31. Painted sherd.
 Pl. X, 40, 42—44. Painted sherds.
 Pl. XI, 45, 52—54. Painted sherds.
 Pl. XII, 56. Painted sherd.
 Pl. XIII, 66, 69—73. Painted sherds.

Pu Chao Chai:

- E. Ch. C. Pl. VI, 12—13. Bone needles.
 Pl. VII, 6—7. Unpainted pottery.
 Pl. VIII, 1. Li tripod.
 Pl. XV, 1, 6. Unpainted pottery.
 Pl. XVI, 1, 8. Unpainted pottery.
 Pl. XVII, 1. Unpainted pottery.

The Ho Yin sites:

- E. Ch. C. Pl. XIII, 3. Chih Kou Chai.
 Pl. XIII, 5. Chih Kou Chai.
 Pl. XIII, 6. Chih Kou Chai.
 Pl. XIII, 8. Chin Wang Chai.
 Pl. XIV, 1. Chih Kou Chai.
 Pl. XIV, 2. Chin Wang Chai.
 Pl. XIV, 3. Chin Wang Chai.
 Pl. XIV, 5. Chin Wang Chai.
 Pl. XIV, 6. Chin Wang Chai.
- Arne: Paint. Pott. Pl. I—II. Painted vessels. Chin Wang Chai.
 Pl. IV, 10—11. Painted sherds. Chin Wang Chai.
 Pl. V. Painted sherds. Chin Wang Chai.

- Arne: Paint. Pott. Pl. VI, 15. Painted sherd. Chin Wang Chai.
Pl. VII, 18—20, 22—23. Chin Wang Chai.
Pl. VIII, 26—28. Painted sherds. Chin Wang Chai.
Pl. IX, 30, 32, 34—35. Painted sherds. Chin Wang Chai.
Pl. IX, 33. Painted sherd. Chih Kou Chai.
Pl. X, 36—39, 41. Painted sherds. Chin Wang Chai.
Pl. XI, 46—51. Painted sherds. Chin Wang Chai.
Pl. XII, 55, 58—62. Painted sherd. Chin Wang Chai.
Pl. XII, 57. Painted sherd. Chih Kou Chai.
Pl. XIII, 63—65, 67—68. Painted sherds. Chin Wang Chai.

* * *

The material so far published from the Honan sites is abundant but rather inequitably distributed. Yang Shao Tsun is represented by stone implements as well as both painted and unpainted pottery.

From the Ho Yin sites, which are remarkably rich in painted pottery, we have published a large number of beautiful painted sherds and a few restored vessels. But nothing is so far published about the stone and bone instruments and unpainted pottery unearthed from these sites. Only two choice ceramic specimens from the Ho Yin sites are reproduced here, viz. the slender vessel with pointed bottom from Chin Wang Chai (Pl. 166,2) and the little graceful eggshell vessel from Chih Kou Chai (Pl. 35,1).

There are certain features in the Ho Yin furniture which are rather advanced, and I am inclined to believe that these sites are slightly more recent than Yang Shao Tsun.

From Pu Chao Chai very little has so far been published, but there is a monograph with 43 plates awaiting publication. Here in this volume I can only refer to the eggshell «tripod» Pl. 35,2, as well as the stone axes Pl. 9.

Stone utensils and bone instruments are very abundant and excellently preserved. The unpainted pottery is opulent and includes several unique and strange pieces. *But there was never a single sherd of painted pottery found at Pu Chao Chai.* This is a very strange fact, as Yang Shao Tsun and Pu Chao Chai are practically identical in all other features. Their topographical setting is absolutely identical: a prehistoric site dissected by loess erosion long after the prehistoric village had fallen into decay. The stone and bone utensils as well as the unpainted pottery are so entirely alike that we can well say: take away the painted pottery from Yang Shao Tsun and you have Pu Chao Chai. Considering that there is a distance of only 5 km. between the two sites, their similarity, except for this one crucial feature, the painted pottery, can be explained in only one way, that Pu Chao Chai was a living village before the art of painting pottery reached Honan, or *after* this art had fallen into oblivion.

From Pu Chao Chai we have a couple of fragments (Pl. 165,8) of a type of asymmetrical stone knife that I do not know from Yang Shao Tsun but wish ich com-

mon in An Yang, and which at any rate seems to forestall the development of the modern Chinese harvesting iron sickle (See text-figure 89). Furthermore, there are in the vicinity of Yang Shao Tsun two other sites, Hsi Chun Tsun and Yang Ho Tsun, never visited by me, but from which I received prehistoric specimens, some of them quite interesting. Here, I was told, no painted pottery occurs, but there are elements of a late age.

With these facts taken into consideration I am inclined to consider Pu Chao Chai slightly younger than Yang Shao Tsun. In the following I treat them as a unit, Yang Shao age without and with painted pottery.

* * *

I now propose to discuss a problem connected with the Yang shao culture in Honan, a problem that did not exist in 1923 when I wrote »An Early Chinese Culture«, but which has arisen from the great discoveries made since 1928 in Shantung by the young archaeologists within the Academia Sinica.

Starting from the find made by Mr. G. D. Wu in the spring of 1928 of the Cheng-tzu-yai site in Li Cheng Hsien, Shantung, these scientists have made us acquainted with a very important prehistoric culture, which they have named the Lung Shan or the black pottery culture.

So far there exist only two comprehensive publications on the Lung Shan culture:

Cheng-tzu-yai, a report of excavations of the Proto-historic site at Cheng-tzu-yai, Li-cheng Hsien, Shantung. A joint volume prepared by Fu Ssu-nien, Li Chi, Liang Ssu-yung, Tung Tso-ping, Wu Gia-ding, Kuo Pao-chün and Liu Yü-hsia. *Archaeologia Sinica* I. 1934.

G. D. Wu: Prehistoric pottery in China. London. 1938.

In addition to these two publications I am glad to mention that in the spring of 1937 I had the pleasure of studying under the guidance of Dr. Fu Ssu-nien and his associates in the building of the Academia Sinica Institute of History and Philology, in Nanking, an enormous and imposing material from the Shantung sites. The fate of these beautiful collections during the present war is unknown to me, but I feel assured that my friends in the Academia Sinica will, when they have recovered their territory and regained their freedom of action, give us full information on the Lung Shan culture.

In »An Early Chinese Culture«, Pl. XVI, there are two specimens, fig. 4 and fig. 8, which should be counted as »black pottery«. In the description of fig. 4 it stated: »The surface of the vessel is very peculiar. It is scraped smooth, burnished and blackened, so that it has a shiny appearance like black leather«.

Of fig. 8 it is said: »The outer surface sootish black.«

When preparing the Pu Chao Chai and Yang Shao Tsun monographs and reviewing their material in the light of the Cheng-tzu-yai monograph, I found that in the mentioned Honan sites there are numerous specimens of black pottery and

that there exists a close relationship between the unpainted pottery of the Honan sites and the furniture of the Lung Shan culture. Out of this relationship there arise pertinent problems which should be elucidated here.

In plates 28—34 we will review the principal specimens of black pottery from Pu Chao Chai and Yang Shao Tsun.

Pl. 28,1 (K 6402) Yang Shao Tsun. Ware fine grey. Thickness of wall 4—7 mm.

A simple bowl with wide flat foot and the margin slightly thickened inwards. Numerous concentric striae both inside and outside indicate that the vessel was formed by a rotary movement. The ware was covered with a black slip, which exhibited a high polish near the margin. Height 47 mm. Diam. of widest part 190 mm. Diameter of bottom 123 mm.

Pl. 28,2 (K 6415) Yang Shao Tsun. Small basin. Ware greyish brown. Inside dull black, outside shiny black. Vessel very irregularly handmade.

Height 75 mm. Diam. 322 mm. Diam. of central cavity 216 mm. Flaring rim 54 mm. broad.

Pl. 28,3 (K 5902: 5) Yang Shao Tsun.

This is one of the most exquisite specimens of all black pottery known to me, a vessel of rare beauty both in its delicate ware and noble shape.

Ware fine, reddish brown. Thickness of wall 4 mm. The vessel has the shape of a bowl with contracted mouth and a 31 mm. high, absolutely vertical collar.

After the vessel was formed it was scraped smooth and then the black slip was applied. In itself the slip gave a dull surface, which by polishing was given a lustre that in this case is perfect.

Height 112 mm., diam. of the widest part 239 mm., diam. of the mouth 204 mm. Diameter of the flat bottom 80 mm.

Pl. 29,1 (K 5901: 16) Pu Chao Chai.

Three big reconstructed sherds of a large high bowl very like 29,2 but with only a slight indication of the sharp, angular break of the vertical profile so characteristic of 29,2.

Lower part of outside covered with very deep and distinct basket pattern. Upper part showing the shiny black polish of the «black group».

Pl. 29,2 (K 5901: 27) Pu Chao Chai.

Reconstructed fragment of high big bowl, made on the potter's wheel.

In the lower half of the profile there is a sharp angular bend. Upper half reaching down to include the angular bend. The surface is blackish and fairly well polished, making this bowl a member of the «black group». Lowest part of outside very rough and surface irregularly scratched.

Ware brown.

H. 166 mm., outside diam. approximately 280 mm.

Pl. 29,3 (K 6544) Honan, Mien Chih Hsien, Hsi Chung Tsun.

Very high bowl with slightly contracted mouth. Like 29,2 the profile of this specimen, in its lower part, takes a sharp bend. In the upper half two broad impressed furrows. Everywhere marks of rotary action. Surface shiny, black.

Ware reddish-brown. Wall 6—10 mm. thick. Outer diameter 318 mm. Height 234 mm.

Pl. 30,1 (K 6458) Yang Shao Tsun. An object, the shape of which is best shown by the figure. It seems as if the base had been attached to a vessel below.

Ware chocolate-brown. Surface dull, black.

Pl. 30,2 (K 6463) Yang Shao Tsun.

Upper part of small urn with wide mouth. Ware chocolate-brown. Wall 2—3 mm. Surface dull black.

The globular body decorated with crossing diagonal incised lines. Flaring rim 14 mm. broad.

Pl. 30,3 (K 6227) Yang Shao Tsun.

Small simple bowl. Ware brownish grey. Thickness of wall 4—5 mm. Margin simple, thin. Both inside and outside smoothened with a slight polish. The entire outside and upper part of the inside blackened. Bottom of inside reddish.

Height of bowl 44 mm., diam. 126 mm. No set-off foot. Bottom-area slightly concave, 55 mm. in diam.

Pl. 30,4 (K 5901: 41) Pu Chao Chai.

Reconstruction of bowl with two big lugs.

Ware brown. Surface blackish, with polish, specially on the inside. Vessel very rough and irregularly built, still showing traces of wheel-action.

H. 67 mm. Diam. of mouth 137 mm.

Pl. 31,1 (K 3044: 43) Yang Shao Tsun.

Very broad margin of a basin and a narrow part of its central cavity. Ware dark brown. Thickness of wall 6 mm. Surface grey, with a faint polish.

Pl. 31,2 (K 3055: 1) Yang Shao Tsun.

A slightly conical fragment with smooth flat bottom. Wall 3 mm. thick. Surface black with good lustre.

Pl. 31,3 (K 3055: 3) Yang Shao Tsun.

Fragment of an exquisite vessel of cylindrical shape. Ware grey. Wall less than 2 mm. thick. Outside decorated with two groups of impressed lines. The black surface has the same high polish as the preceding pieces. The fact that the black in the sunken lines is dull proves that the polishing, which could not reach these sunken lines, was a separate process following upon the application of the slip.

Pl. 31,4 (K 6651) Pu Chao Chai.

A sherd of black pottery with a group of four narrow lines which were formed in the still soft clay before the black slip was applied.

Pl. 31,5 (K 3055: 12) Yang Shao Tsun. Small fragment of the base of a vessel, probably cylindrical. Ware grey, wall 2 mm. thick. Polished, black as black leather.

Pl. 31,6 (K 3014: 48) Yang Shao Tsun.

Marginal fragment with a sharp bend in the profile. Ware brown. Wall 3—4 mm. Near the margin black, deeper down brownish grey.

Pl. 31,7 (K 6362) Yang Shao Tsun. Marginal fragment of vessel with sharp bend in the profile. Wall 6—8 mm. Ware chocolate-brown. Surface darkened but not quite black.

Pl. 32,1 (K 3014: 7) Yang Shao Tsun.

Marginal fragment of a jar, about 36 cm. in diam. Ware grey with occasional black spots. The smooth margin considerably thickened, 14 mm., but the wall further down only 5—6 mm. This marginal fragment is dark grey in colour.

Another sherd of the same type of vessel (not here reproduced) had the characteristic chocolate brown colour of the black pottery and the deep black of the polished surface.

Pl. 32,3 (K 6446) Yang Shao Tsun.

Marginal fragment of a vessel 41 cm. in diam. Only the upper part is known, but we may guess that it was a broad jar or a very deep basin.

The ware is grey. Wall 6 mm. thick.

The margin is elaborately profiled. 56 mm. below the profiled margin there runs a zone 47 mm. wide, bordered by two impressed shallow furrows. This zone is decorated with rows of criss-cross marks. The dark grey surface, including also the criss-cross zone, is smooth and moderately polished.

3 cm. below the criss-cross zone there begins a vertical basket pattern, which extended to an unknown depth.

Pl. 32,2 (K 6643) Pu Chao Chai.

Collar and small part of body of a very large urn.

Ware grey-brown. Wall 5—6 mm.

This is a typical specimen of the «black pottery family». The outside is blackened by the use of some black substance, and this smooth black dull surface extends to the inside of the high collar. The inside of the body very rough and irregular.

The collar is 120 mm. high, considerably wider at the top than at the bottom. The mouth has a 12 mm. broad flaring rim.

The collar carries in its lower half three sunken narrow bands produced by a rotary movement that miscarried in one section of the circumference.

Only a small part of the body preserved. It carries on the outside 45 mm. from the base of the collar a raised band with rounded contour. Below this band the profile of the vessel takes a downward bend.

The outside surface is smooth but dull. It carries upon the body as well as on the collar a diagonal «shadow pattern» formed by lines very gently scratched on the surface, probably after the black pigment applied.

Outside diameter of mouth 177 mm.

Pl. 33,1 (K 3014: 42) Yang Shao Tsun.

Fragment of an urn.

Wall 2—3 mm. broad. Ware grey, very fine. Vessel wheel-made. Outer surface smooth. Outside blackened with a slightly shiny lustre. 7 mm. outside the collar there are two fine incised lines. 22 mm. outside these lines is another crowded group of similar fine lines, and extending from them is a 288 mm. broad zone of criss-cross pattern.

Pl. 33,2 (K 3014: 35) Yang Shao Tsun.

Small fragment of a large urn.

Wall 5—7 mm. Ware fine, greyish brown with stains of black. Traces of wheel action everywhere. Surface inside and outside blackened. Next to the collar is a zone 34 mm. broad, which is entirely smooth. It is bordered by an impressed, flat furrow,

3 mm. broad, outside which there is a zone, 23 mm. broad, with a fairly regular criss-cross pattern produced by short incised lines. Outside this zone is another flat, impressed, very regular furrow, 2 mm. broad.

Pl. 33,3 (K 6674) Pu Chao Chai.

This little fragment is one of our finest specimens of 'black pottery'. The ware is black, with quartz grains. The wall only 2—3 mm. thick. The inside showing wheel-action marks, as far as the fragment goes.

Collar with interesting profile, and wheelmarks also on the outside. The outside of the body has an exquisite polish except for three incised bands, probably cut before the polishing.

Inside, up to the rim of the collar, is a coating of kettle-fur.

Pl. 33,4 (K 3014: 16) Yang Shao Tsun.

Fragment of a very large thin-walled vessel. In shape it may have been like XXIV,2 in Palmgren: 'Kansu Mortuary Urns'. Wall only 2,5—4 mm. Ware homogeneously of finest grain. Colour the typical chocolate-brown of the 'black-pottery'. The vessel is blackened both inside and outside.

In spite of the delicate build, with its thin walls, the vessel is hand-made with a rather irregular inside. The outside is quite smooth with a moderate degree of polish. It is decorated with three groups of irregular raised ridges, 5 in the uppermost, 3 in the middle and at least 3 in the lowest group.

Wheel-like action upon outside of collar.

Pl. 34,1 (K 6649) Pu Chao Chai.

This is a black foot with a flaring rim at the bottom. This rim is flat underneath, which gives to the whole piece an appearance of stability.

Ware brown, covered with a black shiny slip.

Diam. of base of foot 122 mm. Height of foot 80 mm.

Pl. 34,2 (K 6644) Pu Chao Chai.

This is quite a unique specimen within our 'black pottery' group. The ware is the usual fine brown substance which we know from all the other 'black' specimens. The piece is unusually heavy, 12 mm. thick. In its present shape it is a very low, nearly flat cone, the apex of which no longer exists. In fact, it is the shape and function of this central part that decides how this remarkable specimen was placed and used. A further fact to be considered is the roughly striated concave side in contrast to the opposite convex side, which is smooth and polished.

Pl. 34,3 (K 6490) Honan, Mien Chih Hsien, Ma K'o Tsun.

A high-footed piece, the base of which is not preserved. The upper part of the foot is cylindrical and forms the support of the bowl-shaped upper part, which carries a narrow flaring rim.

Inside rough and irregular, outside with rotary-made striae and a zone of oblique impressions (mat-impression?).

Ware reddish chocolate-brown. Wall 7—8 mm. thick. Surface dull, black.

* * *

The black pottery of Yang Shao Tsun and Pu Chao Chai does not form a well-defined group within the perplexing variety of ceramics. On the contrary, it is closely related to the grey pottery, and in one case even to the small painted red bowls. We shall illustrate these affinities with aid of our plates.

Pl. 28,1, and more specially 2, have several counterparts in grey plates and basins.

Pl. 30,1 has a double in K 6459, which is grey.

Pl. 30,2 is a black urn, to which there are numerous grey parallels.

30,3 is the one black specimen in a big group of small bowls which are closely related in shape. It is interesting to note that in shape the black member of the family comes nearest to the numerous small bowls of red ware with painting in black.

30,4 has its grey counterpart in K. 6266.

31,3 and 5 are fragments of tumblers, which probably closely resembled the grey tumbler E. Ch. C. VII, 4.

Pl. 32,3 comes in shape near to K. 3014: 6, with ware and surface grey.

A further very striking instance is the two eggshell vessels Pl. 35. Fig. 2 is a typical black pottery vessel, but fig. 1, which is very similar in shape, is pure grey.

Amongst the black pottery should also be counted some of the Li tripods, which are dull black. Others grey — a further instance of the uncertainty as to where to draw the limit of the black pottery.

The instances just given prove that the black pottery is no well-defined group. One specimen of a certain form type is grey, another is black. It is merely a matter of surface treatment. But there are types of vessels, such as the deep basins Pl. 29, which are preferably black.

* * *

We have seen how the black pottery in Pu Chao Chai and Yang Shao Tsun occurs with considerable frequency and is closely related to the grey pottery occurring in those sites. My impression from the excavation period in Yang Shao Tsun in 1921 was that the three main wares, the red, the grey and the black, occur together in approximately the same proportions throughout the thickness of the deposit.

During the years when we were at work in Sweden on the study of my material, our Chinese colleagues made discoveries of far-reaching importance in Shantung and in N. Honan. In Honan they excavated notably the magnificent remains of the earliest known *historical* site, the capital and the royal tombs of Yin at An Yang.

They also found in the said region traces of the Lung Shan, the black pottery culture, and also of the Yang Shao culture with its painted pottery. At Hou Kang, near An Yang, they found a section »where the stratification consisted of three

layers of cultural remains; the top layer contained remains of the Shang-Yin type, the middle contained objects of the Lung-shan type, and the lowest contained relics of the so-called Yang-shao culture. This discovery was of prime archaeological value, because it manifested the sequence of these three cultures, the relationships between which had hitherto been shrouded in mystery and uncertainty.¹⁾

This clear statement of a stratigraphical sequence, indicating that the Yang Shao stage is older than the Lung Shan culture, made it desirable for me to revise my own observations at Yang Shao Tsun. Fortunately I had undertaken in 1921 stratigraphical excavations at two places, loc. II and III, where the culture deposit seemed to be quite undisturbed. At loc. II we penetrated down to 315 cm. below the local earth-surface without reaching the bottom of the culture stratum. At loc. III we reached at a depth of 1,3 m. the Tertiary red clay beneath the culture deposit.

Furthermore, in the village necropolis, loc. XII, we carried out most painstaking excavations, the position of our finds being recorded with the aid of three coordinates, two horizontal and one vertical. Here we reached a depth of 511 cm. below the local land surface.

I have summed up the result of these stratigraphical excavations in the Yang Shao Tsun monograph as follows:

All these observations from the stratigraphical excavations of loc. II and III and from the burial grounds V and XII agree in proving that in Yang Shao Tsun the red, the grey and the black pottery occur at all levels of the site. As it has been found by our Chinese colleagues that in sites in Northern Honan, the red pottery occurs at the lowest level, the black at a middle level and the grey in the topmost layer, I hope that the Chinese Prehistorians will test my observations in Yang Shao Tsun with the aid of new and very accurate stratigraphical excavations. As far as our present knowledge goes, I am bound to regard the large Yang Shao site as a chronological unit with a very rich and varied pottery consisting of red, black and grey wares. A further remark should be added in this connection. There is grey pottery of much later date, of historical times, in fact: Yin, Chou and Han. This historical grey pottery is in appearance widely different from the grey of the Yang Shao site. I believe that much of the «grey pottery» reported by the Chinese archaeologists from their top-layer belongs to this grey ware of historical times.

If we now turn to the prehistoric red, black and grey wares of the Yang Shao Tsun site, we note from the detailed descriptions given above that these three wares are very intimately interwoven the one with the others. Certain types of vessels were produced only in one kind of ware. For instance, all the vessels with sharply pointed bottom, string-pattern and constricted, semiglobular mouth shown in Pl. 166,2 are invariably made of brick-red ware. But there is another type of vessel with broadly pointed bottom, basket pattern and the neck of an

¹⁾ G. D. Wu: Prehistoric pottery in China. London 1938. P. 13.

Cheng-Tzu-yai

Yang-Shao

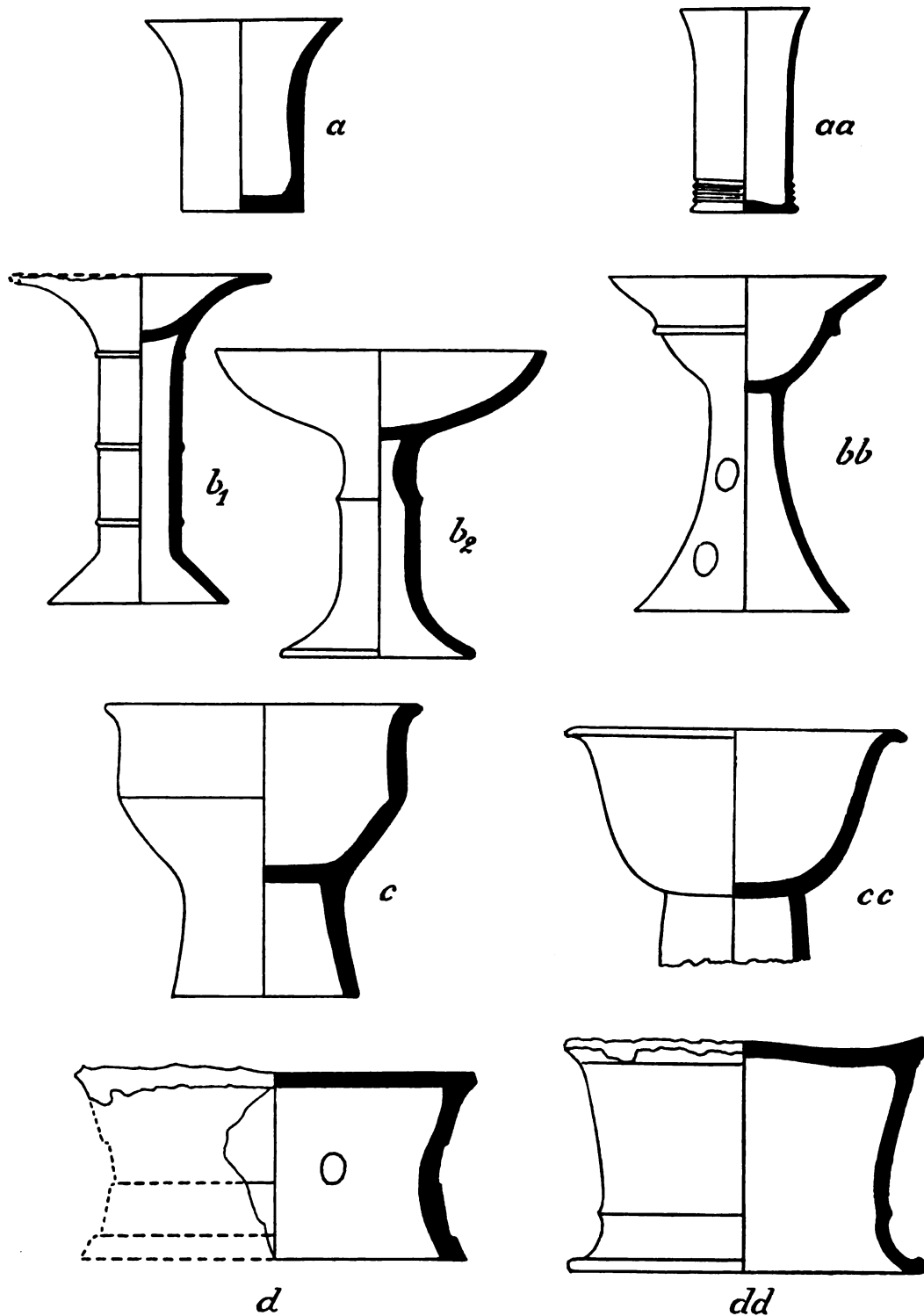


Fig. 19. Comparisons between Cheng-tzu-yai and Yang Shao.

ordinary urn, Pl. 166,3. This type of vessel is made in a light-grey ware, and fragments of these two types of pointed-bottomed vessels occur side by side throughout the Yang Shao Tsun deposit.

As a rule the tripods are made in grey or brownish grey ware, but sometimes their surface is coated with dull black, so that they might possibly be regarded as belonging to the «black pottery» group.

The black pottery is technically a thing apart from the grey and red potteries. The grey pottery is grey all through, with a grey surface. The red is sometimes red all through, and in other cases there is a central part that remained grey because its iron was not oxidized.

But the «black pottery» is quite different. Its ware is generally a homogeneous chocolate brown, covered with a coating of black, which is sometimes dull and in other specimens of a high lustre.

Furthermore, the «black pottery» is in no way a well-defined group. Vessels of the same type are: one specimen black and another dark grey, and this uncertainty prevails to such an extent that I was forced to establish a big group: «grey and black pottery».

As a conclusion drawn from all the facts given above we are led to regard the whole Yang Shao Tsun deposit as representing a single cultural stage characterized by an exceptionally rich and varied ceramic furniture.

* * *

When I studied the magnificent Cheng-tzu-yai monograph (Archaeologia Sinica I, Nanking 1934), it struck me how closely related are, in fact, the furniture of this Shantung site on the one hand, and on the other that of Yang Shao Tsun and Pu Chao Chai. It is true that there is no painted pottery in Cheng-tzu-yai, but this element is equally absent in Pu Chao Chai.

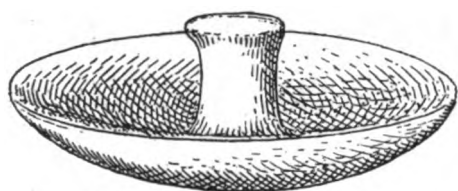
It should furthermore be understood that the pottery of Cheng-tzu-yai is far from being all black. There is a small number of white sherds, many shades of salmon-colour to red, grey and black. In its variety of multi-coloured wares Cheng-tzu-yai seems to compete well with Yang Shao Tsun.

In certain features the two furnitures are quite different. There is, for instance, in Cheng-tzu-yai none of the slender Li-tripods that are characteristic of Yang Shao Tsun and Pu Chao Chai. On the other hand, in the Honan sites there is no trace of the wonderful golden Kuei tripod that adorns the frontespiece plate of the Cheng-tzu-yai monograph. The low Shantung tripod Pl. XVIII,11 and Pl. XXX,6 belongs to a group that is very rare in the Yang Shao furniture and held to be essentially more recent.

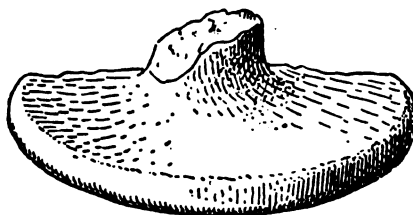
The «high-footed» pieces form a group that offers several parallels between the two cultures. In fig. 19 all the Cheng-tzu-yai specimens are to the left and the Yang Shao specimens to the right. Fig. a is a tumbler, CTY. Pl. XVIII, 1,

Cheng-Tzu-yai

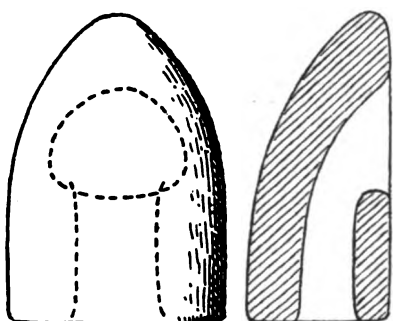
Yang Shao



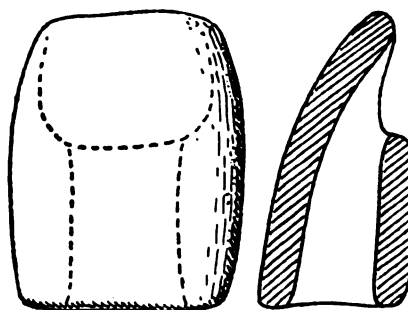
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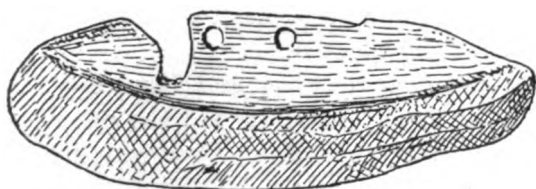
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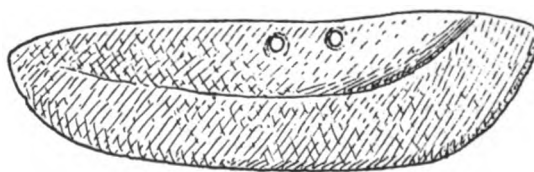
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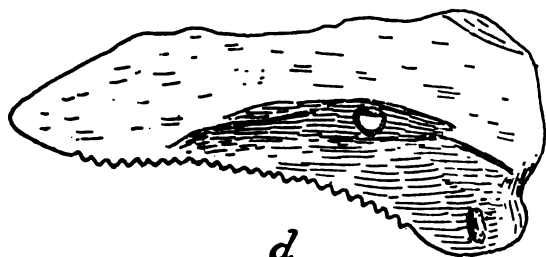
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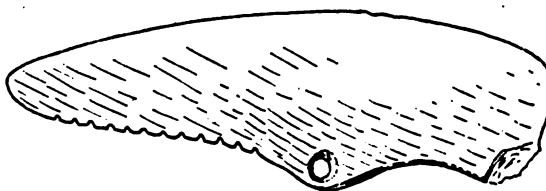
c



cc



d



dd

Fig. 20. Comparisons between Cheng-tzu-yai and Yang Shao.

which fits in excellently with the Yang Shao Tsun tumbler (aa) E. Ch. C. Pl. VII,4. It should be recalled that in our Pl. 31,3 and 5 we have reproduced Yang Shao Tsun fragments of »black pottery», which almost certainly belong to this tumbler type. Fig. bb is an elegant Yang Shao Tsun vessel, K 5.902: 4 from YST, which has evident counterparts in b₂ (CTY Pl. XVIII,1) and b₁ (CTY Pl. XVIII,2).

Fig. cc is an interesting black pottery fragment (Pl. 34,3) from Ma K'o Tsun, a Mien Chih Hsien site without painted pottery. Its Shantung counterpart is c (CTY Pl. XVIII,4).

Further parallels are dd, a grey YST fragment (K 6433) and d (CTY Pl. XVIII,5).

Fig. 20 gives us further parallels chosen from among very characteristic objects.

a is a clay object (polisher?) from CTY, with its Honan counterpart aa, K 6665 from Pu Chao Chai. It should be added that there is a complete YST specimen K 3159: 2 very like the object from Shantung.

b is another queer clay object (polisher) from CTY Pl. XX,8 and its counterpart bb from the Kansu Yang Shao.

Finally, we have in c and d two parallels made from mussel shells. c is a shell knife (CTY Pl. XLIX, 7) with its Honan counterpart cc (K 11,129, Ho Yin Hsien, Chih Kou Chai).

d is a shell saw (CTY Pl. L, 1) and its counterpart dd (K 3058: 2 from Pu Chao Chai).

From these examples we learn that the Honan Yang Shao and the Shantung Lung Shan culture have many striking types in common.

Nevertheless, I believe with my Chinese colleagues that the Yang Shao stage is slightly the older of the two. The existence at Cheng-tzu-yai of oracle bones and a mud-wall contemporaneous with the site are two approaches to the Shang-Yin time of which there are no traces in the Yang Shao stage.

The acceptance of this interpretation of Yang Shao as the older and Lung Shan as the slightly younger stage offers a way out of the conflict between the observations at Yang Shao Tsun, where the black pottery occurs together with the painted pottery, and at Hou Kang near An Yang, where the black pottery is more recent than the painted Yang Shao ware.

What we found at Yang Shao Tsun may be only the beginning of the black pottery which, upon the abandonment of the painted pottery and the development of the Kuei tripod, bone divination and the building of mud walls, grew up to form the mature Lung Shan culture.

* * *

In connection with the black pottery of Yang Shao Tsun and Pu Chao Chai there still remains unanswered the question: how far did the black pottery penetrate W. and N. from those Honan sites?

There are a few scanty clues:

In southermost Kansu, in Tien Shui Hsien, my collector Pai found at Liu Chia Shang Mo among very numerous painted sherds of Yang Shao type one fragment of grey ware, with both the inside and the outside black (Pl. 58,22).

In Li Hsien at Shih Chiao Chen the same man found, together with painted sherds, a fragment of a bowl with simple rim. The ware is grey and the surface black, both inside and outside (Pl. 58,21).

In the distant West of Kansu, in Hsi Ning Hsien, we found in the rich Chu Chia Chai site a sherd (K 2055: 311) forming the margin of a bowl with simple rim, slightly thickened inwards. Ware dark grey. Surface, inside and outside black.

From central Shansi, Hsin Hsien, Tsao Chiao Tsun we possess a small collection made in 1926 by my collector Chuang. Here he found, among other objects of high interest, a sherd (Pl. 97,81) of the typical chocolate brown ware (K 3046: 133) of the Honan Yang Shao. Both the inside and the outside black.

* * *

It should further be noted that Li Chi and Liang Ssu-yung found painted and black pottery together in the Hsi Yin site in SW. Shansi.

A beautiful specimen of black pottery was by me described from Sha Kuo T'un. Sha Kuo T'un Cave Deposit. Pl. X, 3, the top of a Tou or possibly a lid.

EGGSHELL CERAMICS.

The term eggshell has been used to demarcate such ceramic specimens as are distinguished by high quality combined with extreme thinness of the wall of the vessels. It has been used in the history of Chinese ceramic art for specimens of relatively late date, but we shall show in the following that the term may be justified to illuminate one factor in the remarkably refined ceramic art of the Yang Shao time.

The thinness of the wall of a ceramic piece should be judged in its relation to the size of the specimen. When one of the water jars with pointed bottom (Pl. 166,2) has a wall of only 3—4 mm. thickness, this is from a practical point of view a kind of eggshell for a clay vessel nearly a metre in length. This is a vessel of brick-red ware from Ho Yin Hsien. There is also a large utility vessel of grey ware from Pu Chao Chai with the side wall 2—4 mm. in thickness.

However, these thin-walled vessels do not satisfy the second requirement of the art student: they lack the elegant shape and the refined beauty of a perfect eggshell specimen. But there is among the Yang Shao ceramics a small group of vessels with grey to brown ware and smooth grey or black surface which entirely fulfil this condition.

We possess from Yang Shao Tsun a number of sherds, both grey and black, with a wall-thickness of 1—2 mm. Their polish is good and the simple shapes, tumblers, bowls etc. were certainly graceful.

In addition we are able to show (Pl. 35) two more or less complete specimens of this prehistorical eggshell ware.

Pl. 35,1 (K 6263) Honan, Ho Yin Hsien, Chih Kou Chai.

Ware chocolate brown. The wall of the widest part 2.5—3 mm. thick. Bottom only 1 mm. in thickness.

The vessel rests upon three low feet.

Everywhere, inside as well as outside, there are fine concentric rotation marks proving that this graceful little vase was shaped on the potters' wheel. The high collar was also wheel-made. Then the skilled potter, with a resolute double-sided pressure, in one bold stroke squeezed the soft clay-wall to form the sharply and elegantly set-off spout. When this was completed, the handle was attached.

Height 108 mm. Diameter 92 mm.

Pl. 35,2 (K 6610) Honan, Mien Chih Hsien, Pu Chao Chai.

Ware grey, very fine. Wall only one mm. thick.

Like 35, 1, this vessel has a flat bottom and a semiglobular body, which, however, is more flattened than that of Pl. 35, 1. Of the rather wide cylindrical neck only fragments are preserved. The vessel rests upon three small, broadly conical legs, 12 mm. high. Behind the left leg, as shown in the figure, there are visible the attachements of a large handle, which reached from the base of the body to some distance up the collar.

The vessel is covered with a pitchblack slip with dull lustre. Through this slip a decor is cut in the shape of two horizontal rows of short oblique lines.

Diameter 86 mm.

8.

•KAMM-KERAMIK• AND AMPHORAS OF THE CH'I CHIA
P'ING SITE.

This site is located at the base of the high Pan Shan hills and close above the T'ao river. The Malan terrace here rises 70—80 metres above the river bed in a steep cliff at the summit of which the culture stratum is accessible with a thickness of approximately 1.5 m. The whole extent of the culture deposit is NE from the village Ch'i Chia Ping. In NW—SE direction the extent of the culture deposit is 500 metres and in NE—SW direction 250 m. Only refuse from the ancient dwellings was encountered by us. The burials of this very important early stage are so far unknown.

The material brought home from this site was very carefully studied and described by Mrs. Margit Althin, and her manuscript was by me carried to China in November 1936. It was to be printed in the *Palaeontologia Sinica* when the war

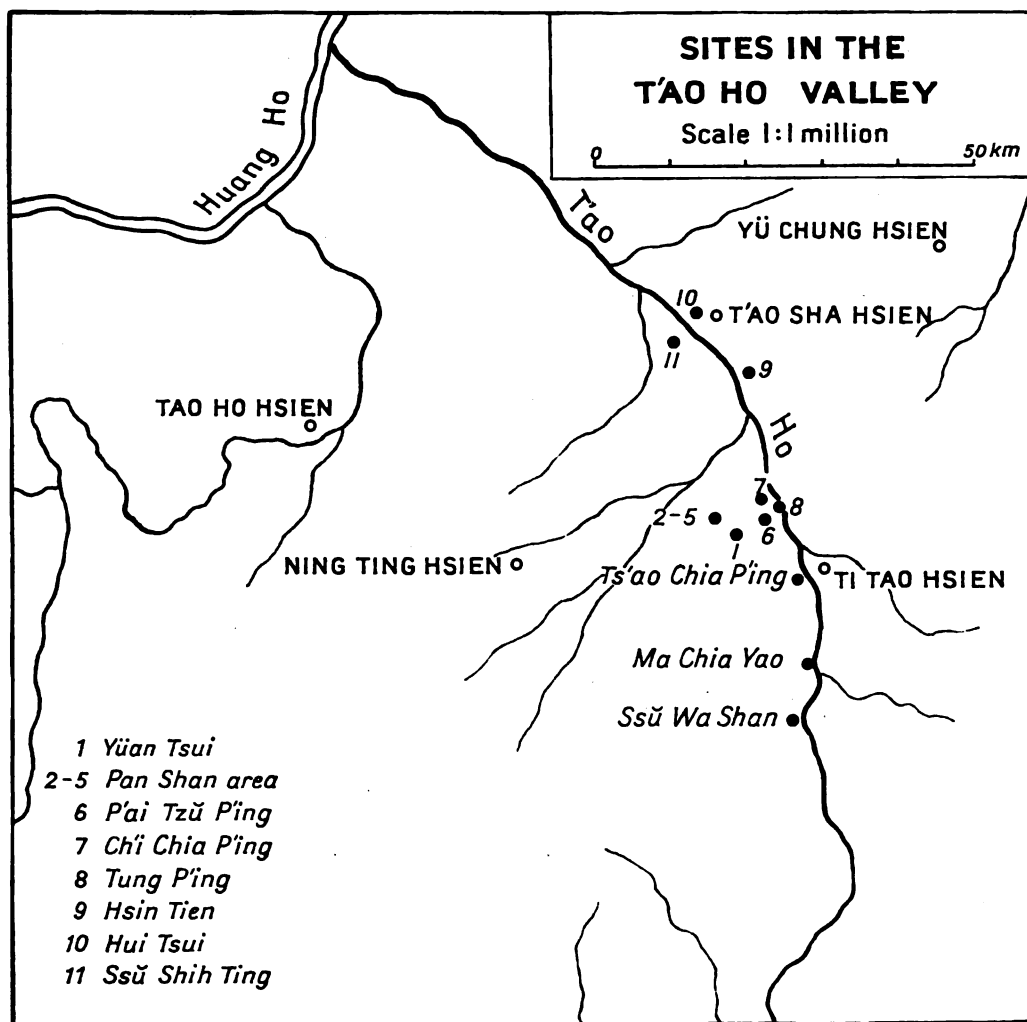


Fig. 21.

broke out in the summer of 1937. The manuscript was carried with the Geological Survey into Szechuan and all my efforts to have it sent here to be published in Sweden have so far been fruitless. In this volume it will suffice to describe two ceramic groups which form the main characteristics of the cultural stage. But before we do this it ought to be mentioned that the stone implements of this stage are very much the same as those of the Yang Shao period, comprising chiefly polished stone axes and knives. There are also bone instruments of different types. Much of the pottery of the Ch'i Chia P'ing site is also of the same type as the Yang Shao grey ware with mat impression or impressed basket pattern.

Among the hundreds of ceramic fragments which were excavated by us in the Ch'i Chia P'ing deposit there were found a small number of marginal sherds, most of them with lugs which exhibit an exquisite and quite specific decorative style to which there is no counterpart in the other prehistoric stages of Northern China.

Not a single complete specimen was found of this remarkable ceramic group, but from the larger fragments (Pl. 36) we can form some idea of their shape. The body was approximately globular with flattened, possibly slightly concave bottom and a moderately low collar, which is in some cases gently widened, in others slightly contracted towards the top. The body carries a nearly vertical, minute mat impression.

The specific decoration is concentrated upon the collar, the lugs and the raised concentric bands on the uppermost part of the body.

The decorative elements here used may be subdivided into the following groups:

1: Narrow raised ridges, mostly occurring as vertical groups below the lugs (Pl. 36, 6, 7, 9.).

2: Impressed zigzag and criss-cross lines (1, 2).

3: Elevated dots with a circular furrow, the whole resembling the mammae of a woman's breast (6, 8, 10).

4: Vertical, oval impressions (9, 10).

5: Rows of small impressed dots. These rows are placed in several neat geometrical patterns. They may have been impressed by means of some comb-like instrument and resemble the «Kamm-Keramik», so widely distributed in the north of Eurasia.

A favourite arrangement of these rows of impressions is as V- or X-shaped figures on the outside of the lugs (1, 3, 4, 7, 8, 10). Fig. 1 shows a zone of short oblique lines impressed along the rim of the collar. At the top of the lug are two horizontal lines of impressed dots.

Narrow concentric raised ridges decorated with impressed dots run, as per figs. 7 & 9, on a level with the lower part of the lug.

Figs. 8 & 10 show, below the lugs, concentric bands with oblique rows of impressed dots.

In my «Preliminary report on archaeological research in Kansu» (Mem. Geol. Survey of China. Ser. A. No 5. Pl. 4). I reproduced three specimens from the Ch'i Chia P'ing site.

Fig. 2 gives a simple instance of the «Kamm-Keramik». Fig. 1 is on the outside like our Pl. 36, 1 & 7, but the inside (1 b) of the collar shows a feature that is unique: painting in violet red consisting of three hanging triangles.

In no other of the Kansu sites is there any counterpart to the elegant «Kamm-Keramik» of Ch'i Chia P'ing. In my preliminary report of 1925 I have compared it with sherds from Kaukola in Finland. («Ailio: Fragen der russischen Steinzeit, Zeitschrift der finnischen Altertumsgesellschaft. XXIX: 1, Figures 14 & 15»).

* * *

Another most remarkable group of Ch'i Chia P'ing pottery consists of the amphora-like urns.

In the preliminary report of 1925 I have reproduced a slightly incomplete specimen of this type Pl. V, 3. »Amphora-like urn of whitish-yellow ware, thin-walled (3 mm) with smooth surface.»

I have here reproduced in plates 37—39 a number of urns of Ch'i Chia type. All were obtained by purchase in Lanchow or other parts of Kansu. Fragmentary specimens unearthed in the Ch'i Chia P'ing site afford complete evidence that the two types shown in Pl. 37 and Pl. 39 belong to this stage. I consider it probable that the type shown in Pl. 38 also belongs to it.

Pl. 37,1 (K 6563) Kansu, probably bought in Hsin Tien.

An extreme specimen of the Ch'i Chia amphora. The collar is much higher and wider than the body. The lugs are consequently enormous.

Pl. 37,2 (K 5430) Bought in Lanchow.

Amphora with relatively low collar. The body painted with violet pigment in a design of hanging triangles, each consisting of three V-lines, one inside the other. This painting, together with that of Pl. V, 1 b in »Archaeological research in Kansu», are the only two instances of painting in the Ch'i Chia material. In both cases the design is hanging triangles and the pigment is violet.

Pl. 37,3 (K 5487) Kansu, Chin Chow. Bought.

This is the typical Ch'i Chia amphora with the collar slightly lower than the body, which has an angular profile. Ware light redbrown.

Pl. 37,4 (K 5427) Bought in Lanchow.

A startlingly modern-looking, functionalistic vessel. In everything except the superstructure of the mouth the vessel is a typical Ch'i Chia amphora with a single broad and strong lug. Opposite the lug the larger part of the collar is covered by a vault carrying a cylindrical spout. Ware greyish brown. Vessel undecorated.

Pl. 38 (K 5523) Bought in Lanchow.

In its shape and above all in its grey ware this vessel differs from Pl. 37, 4. Nevertheless the general outlay is so closely similar that I have included this striking specimen in the Ch'i Chia group.

There is a narrow foot part. The body is exceedingly low with rounded profile. The collar is extremely high. The strong handle is decorated with two pairs of vertical furrows and a smooth top part with two »buttons».

The collar is vaulted over. Near the handle is a kidney-shaped opening, and opposite this opening is the cylindrical, much damaged spout.

Pl. 39,1 (K 5428) Bought in Ning Ting Hsien, Pa Pao Tsui.

Urn with a moderately high, funnel-shaped collar. In the profile of the body there is a marked break. Immediately beneath this break there are two small and entirely rudimentary lugs.

Upon the lower part of the body very faint traces of vertical basket pattern. For the rest the vessel lacks all trace of decor.

Ware light greyish brown to greyish red.

Height 228 mm. Widest diameter 138 mm.

Pl. 39,2 (K 5426) Bought in Chin Chow.

Like 39,1 but with larger lugs and more distinct vertical basket pattern upon the lower half of the body.

Ware brick-red. Inside of collar decorated with a red slip.

Pl. 39,3 (K 6042) Bought in Ti Tao Hsien, Ma Chia Yao.

Urn like the two preceding, but the profile of the body evenly rounded. Collar slightly flaring. Basket pattern upon lower part of body. Upper part and collar smooth. Inside of collar with traces of red slip.

Height 288 mm. Diameter 179 mm.

* * *

At T'ao Sha Hsien, Hsin Tien C some material of Ch'i Chia type was unearthed by us. Some fragments of this type have also been found at T'ien Shui Hsien, Chi Li Tung and in Hsi Ning Hsien, but Ch'i Chia P'ing is the only place where we had time to excavate systematically in deposits of this stage.

* * *

The ceramic furniture of the Ch'i Chia P'ing site offers two characteristics which are difficult to interpret. One is the elegant »Kamm-Keramik» and the other is the delicate and seemingly very advanced »Amphora». On account of the latter type we might feel inclined to assign a relatively recent age to this deposit. On the other hand, we have in Kansu such an unbroken chain of ceramic development from Yang Shao through Ma Chang, Hsin Tien and Ssu Wa far into the Bronze Age that we clearly realize that Ch'i Chia cannot be placed within this ceramic sequence and still less at the top of it. Ch'i Chia is undoubtedly a pre-metallic stage, and consequently we are forced to mark it down as pre-Yang Shao.

In fact, there is also stratigraphical evidence in support of this interpretation.

In the undisturbed Ch'i Chia culture deposit there were never found any Yang Shao sherds. But on the surface of this deposit I found in the cultivated fields quite a number of small Yang Shao sherds, a fact that may be explained by the possibility that when the Yang Shao people passed over the abandoned Ch'i Chia settlement, from time to time they dropped some of their refuse over an area once inhabited by the makers of »Kamm-Keramik» and Amphoras.

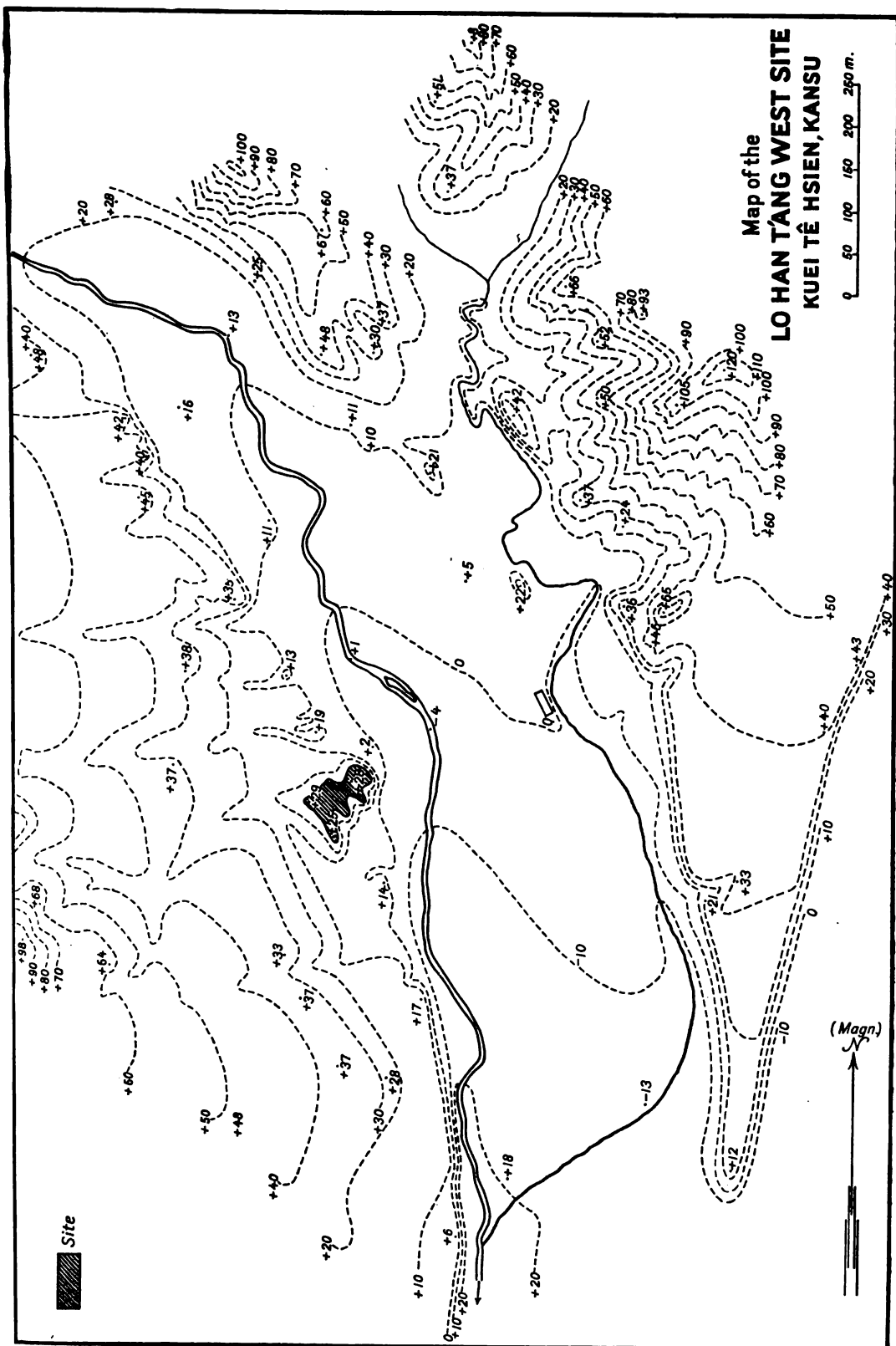


Fig. 22.

9.

LO HAN T'ANG WEST.

The very elaborate stone knives from this site are described in the chapter «Rectangular and semilunar knives». The chisel of silk-grey jade is described with the semi-precious stones, Pl. 73,4.

This site is located 240 km. W from Lanchow, the capital of Kansu, in the section of the Huang Ho where that river descends from the Tibetan highland into the Kansu plain. Because of its steep fall the river has here cut down a canyon some 800 m. deep through «horsts» of old crystalline rocks and through sunken blocks of the soft Pliocene Kueite beds.

The exact position of the site is about 20 km. W of the small town of Kuei Te in a side valley on the north side of the Huang Ho.

The site and its surroundings are shown in our Pl. 1 B. The site itself is on the top of the vertically sculptured cliff behind the two white tents of our camp.

The high range in the background is a «horst» of old crystalline rocks. The immediate surroundings of the site is a sunken block of soft Kueite clays, muds and sands. The valley bottom was once filled with Malan sediments of gravel and loess, which have been eroded to a depth of about 30 m. As shown by the map fig. 22, the site is located upon a small island of the deeply dissected Malan terrace. The narrow space occupied by the site forms an island of Malan ground surrounded everywhere by precipitous cliffs or steep slopes. The cliff facing the modern river-plain is 31 m. high and nearly perpendicular. To the south and southwest the slope is also very steep. The site is most easily accessible from the northwest, but even here the slope served as a kind of natural fortification. Every indication goes to show that the topography 4,000 years ago, when the place was inhabited by the Yang Shao people, was much the same as it is today and that this spot of the old Malan surface was deliberately chosen on account of its difficult approach.

The length of the culture deposit is 90 m. in a NE-SW direction and 55 m NW-SE. The thickness of the culture stratum is at the most 0.72 m.

In the course of this excavation we came across a feature which we never met with in any other prehistoric site: apparently the bases of two kilns, probably for the firing of pottery. The larger one has the following dimensions. One diameter is 1.05 m. Of the other one, at right angles to the first, only 0.61 m. was still preserved. The bottom and what remains of the sides (13—22 cm. in height) are smooth and hard packed on the inside, with some scratches on the surface. Both the bottom and the sides consisted of several layers, apparently formed in such a way that a new layer was smeared on over the inside from time to time as required. The bottom was black from charcoal soot, the sides grey. Beneath the grey surface the wall was burnt a reddish brown to a depth of 7—8 cm. Under the bottom the burning had penetrated to a depth of 11 cm., and here was a regular layer of flat pebbles, 10—20 cm. long.

The second kiln base was smaller. For the rest, it resembled the big one in every feature, with the single difference that in this case the basal flat pebbles were only 7—10 cm. in length.

Stone objects.

Pl. 40,1 (K 2170: 18) A slender specimen of the Pan Shan type of stone axe (compare Pl. 63). The cross section is oval and the neck is narrow. The material is a black schistose rock.

L. 229 mm. Br. 55 mm. Th. 27 mm.

Pl. 40,2 (K 2170: 19) A Pen of dark, hard, dense rock.

L. 98 mm. Br. 52 mm. Th. 17 mm.

Pl. 40,13 (K 2170: 13) Fragment, probably of the type we have named »Broad axes with square neck». Greenish grey, schistose rock. Two holes, one close by the neck, the other in the centre.

Pl. 40,11 (K 11173) A nearly complete specimen of a chisel-like implement, which, so far as I know, seems limited to the Kansu sites.

The rock is dark, dense schist.

The centre is relatively thick, rounded, square in cross-section. From here it tapers towards both ends, one of which is rounded and carries a very narrow asymmetrical edge, which is cut from one side only.

L. 101 mm. Br. 15 mm. Th. 14 mm.

Pl. 40,10 (K 2170: 16) Another specimen of the spool-shaped chisel like Pl. 40,11. One end broken, the other with an edge like that shown in Pl. 40,11, but larger.

Pl. 40,3 (K 2170: 14) Crudely cut disc (103 mm. diameter). Diorite. Cut from a big pebble, one surface of which is retained.

Pl. 40,12 (K 2170: 15) An oval disc (100×58 mm.) cut like Pl. 40,3 from a diorite pebble, with one side retained.

Pl. 40,4 (K 2170: 39) Sling-stone of burnt clay. As a matter of convenience it is here described together with the stone objects. Diameter 34 mm.

Pl. 41,6 (K 2170: 42) Small rectangular pendant (?) cut in grey slate.

L. 47 mm. Br. 10 mm. Th. 2 mm.

Pl. 41,5 (K 2170: 41) Pendant(?) of grey slate. Cross-section rectangular. Both ends obtusely pointed. 15 mm. from the top a furrow cut round three sides, probably for tying with a string.

L. 80 mm. Br. 7 mm. Th. 5 mm.

Pl. 40,5 (K 2170: 20) Half of an armlet(?) of white marble with a tinge of yellowish rose. Outer diameter 80 mm. Width 58 mm. Thickness 4—5,5 mm.

The ring is regularly cut with the same thickness nearly all through, only slightly tapering towards the margins. The outside elegantly polished, the inside merely well smoothed over and stained with a red pigment.

Pl. 40,8 (K 2170: 23) Fragment of an armlet of white sugar-grained marble. The cross-section is concave on the outside and correspondingly convex on the inside.
Width 29 mm. Thickness 6 mm.

Pl. 40,9 (K 2170: 21) Fragment of armlet of white marble with innumerable small pores representing a decayed mineral (brucite). Cross-section slenderly lenticular.
Width 40 mm. Thickness 7 mm.

Pl. 40,7 (K 2170: 23) Armlet of the same kind of marble as Pl. 40,9. Cross-section semicircular.
Width 15 mm. Thickness 11 mm.

Pl. 40,6 (K 2170: 36) Dark slender armlet of burnt clay. Sides ground flat.
Width 9 mm. Thickness 7 mm.

Bone instruments.

Pl. 41,1 (K 2170: 25) Bone knife, the convex side of which is provided with a deep furrow for fastening flint flakes into it. This furrow is 3 mm. deep. At the broad end there is a hole, probably for inserting a string for suspension.
Length 227 mm. Length of furrow 147 mm.

Pl. 41,2 (K 2170: 26) Another, more slender specimen of the bone knife. Here too the furrow for the flint flakes is on the convex side of the knife. In this knife the furrow is only 2 mm. deep.
Length 177 mm. Length of furrow 107 mm.

In both these knives the furrow extends to the very point of the knife. At the other end there is an unfurrowed handle part, 80 mm. long in the large specimen and 70 mm. in the small one.

Pl. 41,8 (K 2170: 30) Fairly stout sewing needle, 73 mm. long.

Pl. 41,3 (K 2170: 33) Broad, stout awl with the trochlea only slightly retouched.
Length 98 mm.

Pl. 41,4 (K 2170: 28) Slender awl with completely retouched trochlea. Length 122 mm.

These awls were made from the metatarsalia or metacarpalia of some small *Arthiodactyle*. In »The Cave Deposit at Sha Kuo T'un» Pl. IX, 1, I have reproduced an awl of this group. Similar objects are reproduced in my monograph on the Pu Chao Chai site, which is shortly to be published.

Pl. 41,7 (K 2170: 31) A unique and very remarkable bone object, a thin plate split from a big bone. The figure gives a very good idea of the specimen with its four indentations and three perforations. The holes are biconical, bored from both sides.

A strange feature is a bleached band connecting the two lateral indentations. It is just faintly seen on the photograph. Similar but narrower bands of colour run from the side indentations to the »eyes», and from these to the top-indentations. It seems as if ribbons or strings were once wrapped round the bone between these points.

Length 107 mm.

Pl. 41,9 (K 2170: 34) A flat bone object with a hole at the top and a worn point below. This pointed part is decorated with five small pits. On the reverse side there is one such pit slightly higher up than those on the front side.

Pottery.

The ceramic material from this site consists for the most part of fragments of big coarse vessels of a grey or pale brick-red colour. We have not been able to reconstruct any of these vessels, and in its fragmentary state the sherds are rather obsolete.

In one single case, K 5824 (Pl. 42), we were able to reconstruct out of many, partly secondarily discoloured sherds a vessel of considerable interest.

The ware is brown with light brown and reddish brown spots.

The very high urn has a slightly flaring collar, at the base of which there is a superimposed band, 13 mm. broad, which is divided by linear diagonal incisions into small raised rhombs.

The upper, smaller half of the body is smooth, without any pattern. The lower, taller half is covered with vertical basket pattern. In the uppermost part of this basket-pattern zone and slightly beneath the widest part of the vessel are two lugs.

Height 460 mm. Width 297 mm. Outer diameter of mouth 170 mm.

From the painted sherds excavated in this site a selection is presented in Pl. 43. They are all in half size, except the two annular objects 9 & 10, which are in natural size.

Pl. 43, 9, 13 & 14 show a pale, yellowish grey ware, which comes very near to the prevalent Ma Chia Yao ware. 10 is a deep brick red, but all the rest are of a light chocolate colour which recurs in some of the Ma Chia Yao sherds.

On the majority of the sherds the pigment used is black, but there are two exceptions. 10 is painted in violet red upon the brick-red ware. 13, the outside of which is painted in black, has on the inside near the margin a careless splash of redbrown.

Pl. 43,1 carries an almost unique design which has the black saw teeth of the «death pattern» but lacks its red band.

Pl. 43,2 is another unique specimen. It was an urn with low wide mouth. It has a black design which I have not seen on any other vessel and in addition there is a unique painting in white: circular dots in three groups and a band between the two black horizontal bands.

Pl. 43,3 & 5 are the insides of bowls. 3 has a single horizontal black line on the outside. 5 reaches to the margin and carries a rim, 14 mm. broad and bent slightly downwards. The inside painting of this bowl offers a unique feature. Each of the three black spots (12—13 mm. in diam.) carries close to its side a minute (1.5 mm. diam.) very carefully painted dot. This is hardly fortuitous, but may be another case of the cryptic magic to which we shall revert in chapter 28.

Pl. 43,4 and 11 are instances of the concave triangles, often associated with dots, which are common both in the Honan and in the Kansu Yang Shao. Pl. 43,13 should

be compared with Pl. 50,3 of the Ma Chia Yao site and Pl. 43,4 seems to be closely related to Pl. XXI, 6 in «An early Chinese Culture», the latter a specimen from Yang Shao Tsun.

Pl. 43,6 is in pattern closely related to the outside of Pl. 54,2 (Ma Chia Yao).

Pl. 43,8 is in its inside and outside, and also rim decor, closely akin to a Ma Chia Yao bowl.

Pl. 43,14 has its Ma Chia Yao counterpart in Pl. 54,1.

Pl. 43,7, 12 and 13 are to be compared with Pl. 184,3, where a heavy vertical splash interrupts the horizontal lines. Pl. 43,12 shows the base of the handle to bowls which we know from Pl. 182,2 and from Pl. 107.

* * *

As will be clear from this survey of the painted designs, Lo Han T'ang is a typical Yang Shao site which has its individual feature in the winged stone knives.

When attempting to decide the stage within the Yang Shao time to which the Lo Han T'ang site belongs, we are guided by two facts.

1: In the Lo Han T'ang material there are none of the signs of maturity and degeneration which are so abundant in the late Yang Shao (Chu Chia Chai). If the material were not so small and isolated, we might even be tempted to interpret Pl. 43,1 as a beginning of the death pattern, not yet fully developed.

2: The complete urn Pl. 42, and two sherds of exactly the same kind, represent a type of urn that we have described as one of the characteristics of the Ch'i Chia stage. When we compare Pl. 42 with Pl. 39 (three urns described as belonging to the Ch'i Chia stage) the likeness is striking. The general shape is the same, as are also the small lugs. The collar of the three urns Pl. 39 still retain the straight, high, inverted conical shape of collar of the Ch'i Chia stage (Pl. 37). In Pl. 42 the collar is much lower than in any of the Pl. 39 urns. Moreover, it is flaring in shape, resembling many urns of Yang Shao age.

Tentatively we label Lo Han T'ang as Early Yang Shao.

10.

THE MA CHIA YAO SITE.

This site is situated in Ti Tao Hsien 12 km. S of the Hsien city on the west side of the T'ao river, which flows at a distance of about half a kilometer E. of the site. Ma Chia Yao is a small hamlet situated on the river plain. Close to the west of the village rises the Malan terrace, which may here be estimated at a height of about 50 m.

S. of the village is the mouth of a ravine, which, dissecting the Malan terrace, extends towards the west. At the mouth of this ravine there is a lower terrace, remnants of which are seen on the north as well as on the south side of the ravine. The terrace is more extensively developed on the north side, and here was found the culture deposit which forms the site. This lower terrace is 24 m. high. Separated from it only by a small gully rises, to the north, the Malan terrace, conjectured to be 50—60 m. high.

The extent of the culture deposit in an E-W direction is 350 m. In an N-S direction the site is rather narrow.

The culture deposit, mostly of the 'ashy earth' type, is 2 m. in thickness.

This dwelling site is the type locality of Kansu middle Yang Shao. In the wealth of its well-preserved artifacts it is one of our foremost sites.

The three remarkable animal figurines are described in chapter 26. A selection of the other artifacts will be dealt with here.

A jade chisel is described among the semi-precious stones (Pl. 73,5).

This site was discovered by my collector Chin and excavated by him. Only once did I have occasion to visit this place.

Stone objects.

Pl. 44,1 (K 3232: 61) Thin adze of hard greenish rock, not unlike impure jade.
L. 111 mm. Br. 49 mm. Th. 14 mm.

Pl. 44,2 (K 3232: 63) Thin adze of black crystalline rock. Edge only slightly asymmetrical. One of the narrow sides elegantly faceted. Hind part broken.

Pl. 44,3 (K 3232: 60) Thin adze with broad fore part. This specimen belongs to a type known from the Pan Shan graves (Pl. 68). One side strongly incrustated.
L. 109 mm. Br. 63 mm. Th. 12 mm.

Pl. 44,4 (K 3232: 49) Small thick chisel with symmetrical edge. Black dense rock.
L. 59 mm. Br. 7 mm. Th. 8 mm.

Pl. 45,10 (K 3232: 57) Thick chisel with strongly asymmetrical edge. Black rock.
L. 113 mm. Br. 15 mm. Th. 19 mm.

Pl. 44,8 (K 3232: 64) Pen of liver-brown hard dense rock. Perfect polish.
L. 58 mm. Br. 38 mm. Th. 11.5 mm.

Pl. 44,9 (K 3232: 51) Small, thin, crude chisel of grey slaty rock.
L. 37 mm. Br. 24 mm. Th. 4 mm.

Pl. 44,6 (K 3232: 33) Object of greenish-grey slate. Use unknown.
L. 65 mm. Br. 11 mm. Th. 2 mm.

Pl. 44,5 (K 3232: 34) Pendant of grey slate.
L. 55 mm.

Pl. 45,9 (K 3232: 62) Hoe of black, not very hard rock. One side is part of the smooth surface from which this tool is a flake. The other side is coarsely chipped. The upper part is narrow, probably to fit into the hand. A similar shape is known to us from Ho Yin Hsien in Honan (Pl. 23,3).

L. 163 mm. Br. 55 mm.

Pl. 44,7 (K 3232: 67) Pestle-shaped limestone object, circular in cross-section and with the grinding surface very smooth under the lime incrustation.

L. 105 mm.

Pl. 45,14 (K 1484) Discus-like object chipped from a flat, thin pebble of grey quartzitic sandstone. One side is very smooth, indicating that the instrument has been used for some grinding or polishing purpose.

Pl. 45,12 (K 3232: 66) Sling-stone of red and white spotted marble.

Diam. 44 mm.

Rings of stone and clay.

Pl. 47,1 (K 3232: 54) A complete ring, broken into three sections. Black, not very hard rock. The outer side is concave and the inner convex. The ring is carefully cut with only slight irregularities. It seems to have been much worn, the inside being much smoother than the outside.

Outer diam. 83 mm. Br. 33 mm. Th. 4.5 mm.

Pl. 47,2 (K 3232: 36) Fragment of ring of porous, very soft marble. Shape, as in Pl. 47,1, concave outside and convex inside.

Br. 18 mm. Th. 6 mm.

Pl. 48,1 (K 3232: 38) Ring of white marble with empty spaces from dissolved brucite (compare Lo Han T'ang Pl. 40,7 & 9).

Br. 18 mm. Th. 8 mm.

Pl. 47,3 (K 3232: 56) Ring of dark grey, not very hard rock.

Outer diameter approx. 91 mm.

Pl. 47,4 (K 3232: 55) Ring of rock like that of Pl. 47,3.

Outer diameter approx. 86 mm.

Pl. 47,5 (K 3232: 45) Complete ring of black rock.

Outer diameter 69 mm.

Pl. 48,6 (K 3232: 37) White marble ring.

Pl. 47,6 (K 3232: 44) Clay ring.

Pl. 48,5 (K 3232: 40) Ring of pale brick-red clay.

Pl. 48,7 (K 3232: 47) Slender ring of dark grey clay.

Outer diameter 65 mm.

Pl. 48,2—4 (K 3232: 41—43) Objects of grey clay. They are all flattened on the sides. 48,4 is very thin; the two others, when seen in dorsal view, give the impression of being double owing to the existence of a deep dorsal furrow. Dorsally they are all broadly and roundedly dentated, making them look like the horn of an ibex.

Bone and antler instruments.

Pl. 45,1 (K 3232: 5) Slender awl with the trochlea not at all retouched.
Length 179 mm.

Pl. 46, 5 (K 3232: 12) Awl of excellent polish.
Length 110 mm.

Pl. 45,2 (K 3232: 8) Awl with a most pleasing polish. Point broad and sharpened into a narrow, asymmetrical edge.
Length 182 mm.

Pl. 46,2 (K 3232: 11) Awl, rounded and well pointed.
Length 120 mm.

Pl. 46,6 (K 3232: 17) Small thin awl.
Length 86 mm.

Pl. 46,1 (K 3232: 16) Slender awl, rounded rectangular in cross-section.
Length 132 mm.

Pl. 45,5 (K 3232: 7) Double-edged chisel, the upper edge (as shown in the figure) is broad (21 mm.), the lower edge is turned 90° as compared with the upper one. This edge is only 6 mm. broad.
Length 145 mm.

Pl. 45,6 (K 3232: 6) Chisel with edge 8 mm. broad.
Length 148 mm.

Pl. 45,8 (K 3232: 65) Chisel probably cut from a deer antler. Fracture at upper end old.
Edge 29.5 mm.

Pl. 45,11 (K 3232: 3) Pointed instrument shaped from an antler, possibly of a roe-buck.

Pl. 45,3 (K 3232: 4) Thin instrument, probably shaped from a rib-bone. Upper end neatly square-cut. Lower end broken and lost during excavation.
Length 230 mm.

Pl. 45,4 (K 3232: 18) Thin, very well worked instrument. Square-cut at upper end and pointed below.
Length 141 mm.

Pl. 46,3 (K 3232: 13) Thin instrument, like Pl. 45,4 but narrower.
Length 118 mm.

Pl. 46,14 (K 3232: 21) Thin, triangular instrument.
Length 60 mm.

Pl. 46,4 (K 3232: 14) Exceedingly delicate and nicely shaped instrument, with beautiful polish on the outside. Wall less than $\frac{1}{2}$ millimeter thick. Probably shaped from a bird's hollow bone.

Pl. 46,15 (K 3232: 15) A unique instrument of unknown use. At the upper end (as seen in the figure) there is a wider part forming a carefully flattened and smoothened circular platform upon which the instrument can stand. The solid cylindrical piece tapers slightly towards the lower end, which is bored longitudinally to a depth of 9 mm. The whole instrument has a pleasing polish as if from long wear.

Length 72 mm.

Pl. 45,13 (K 3232: 24) An object of unique shape und unknown use.
Length 45 mm.

Pl. 45,15 (K 3232: 10) Pendant shaped from the tusk of a boar. Three holes, all biconically bored.

Length 80 mm.

Pl. 45,7 (K 3232: 7) A piece, nearly quadratic in shape, cut as a shallow segment from a very thick cylindrical bone. In the middle of the outside, a deep furrow continued inwards as a hole near the edge.

L. 36 mm. Br. 40 mm. Th. 10 mm.

Pl. 46,10—13 (K 3232: 29—32) Sewing-needles.

Pl. 46,7 & 8 (K 3232: 22—23) Small bone objects, square-cut and flattened above and pointed below.

Pl. 46,9 (K 3232: 28) Bone hook broken near the point. A centimeter underneath the upper end a circular furrow for tying a string.

Pl. 46,16 (K 3232: 26), 18 (K 3232: 27) Woman's finger-rings. Gently rounded and polished on the outside and worn until a perfect polish obtained on the inside.

Pl. 46,17 (K 3232: 25) Small, thin, relatively broad (6 mm). ring, transversely grooved on the inside with fine, regular rifling. This rifled inside is so worn as to be polished all over.

Pl. 46,19 (K 3232: 19) Part of a bone ring with a hole at each end. The ends of the ring are not sharp fractures but rounded and much worn like the rest of the specimen.

There is another more slender ring (K 3232: 20), not illustrated in the plates. This ring is perforated with three holes close to old fractures.

Pottery.

This site, like all the other Yang Shao sites of Kansu, contains a certain amount of coarse pottery which is less widely differentiated than the finely painted ware. In this brief review of selected specimens from Ma Chia Yao only the painted pottery and one piece of unpainted brick-red ware are described. This neck piece of what was most probably a vessel with pointed bottom is worthy of special attention, as it is one of the very few Kansu specimens of a type very common in Honan.

Pl. 49,1 (K 2354) Neck-piece, most probably belonging to the type of slender vessels with pointed bottom which we know best from the Ho Yin sites in Honan (Pl. 166,2).

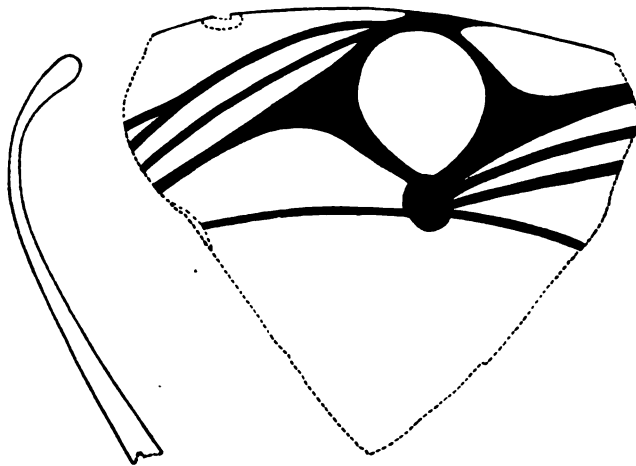


Fig. 23. Sherd K 11241: 8.

The ware is pale brick-red. The wall is much thickened in the neck but only 4 mm. in the wider part. The neck is smooth. The wider part covered with a string-impression characteristic of this type of vessel.

Diam. of widest part of neck 88 mm. Inner diam. of mouth 49 mm.

K 11241: 8. As the painted design is bleached and now very weak, we reproduce this interesting specimen as a drawing (fig. 23). The ware is brick-red, with a slightly deeper tone of red than the ordinary painted pottery of Yang Shao Tsun.

Bowl with simple margin and strongly curved upper part with slightly contracted mouth. Profile of lower part nearly straight.

Painting limited to upper part of the outside. Two triangles with concave sides encircle a pear-shaped unpainted space. At the lower junction of the triangles a dot from which radiate three lines to the right and one to the left. Above the left triangle there are two lines arranged like those below the right triangle.

Pl. 50,5 (K 11241: 16) Bowl with simple margin and uniformly rounded profile. Ware reddish yellow.

On the inside only a small stroke of black paint at the margin.

On the outside two big fields of narrow parallel lines framed by broad zones. The two fields come close together at the margin. In the narrow interspace between the two fields a small hook turned to the right. Along the rim a broad saw pattern.

Pl. 49,2 a & b (K 11241: 15) Bowl with simple margin, rounded profile and flat bottom. Ware straw-coloured.

Outside painting: lines running nearly parallel to the rim. The inside painted with wavy lines radiating from centres with a dot.

Pl. 50,4 a & b (K 11241: 19) Bowl of same shape as Pl. 49,2. Ware straw-coloured. Outside painting resembling that of Pl. 50,5.

Pl. 49,4 a & b (K 11241: 17) Bowl with flaring rim. Ware straw-coloured with a brownish tint. The inside decorated with wavy lines in two discordant groups; the outside with a similar but less detailed sparser pattern. Rim with same pattern as Pl. 49,3, except that both groups of lines are turned to the right.

Pl. 49,3 (K 11241: 21) Ware, shape and painted design like Pl. 49,4, except that dots are interspersed among the wavy lines and that the groups of straight lines on the rim converge into a 'tent pattern'.

Pl. 50,2 (K 11241: 5) Marginal sherd of a bowl very closely related to Pl. 55,3. Ware light-chocolate-coloured.

Pl. 50,1 (K 11241: 10) Ware, shape and rim-painting as in Pl. 50,2, except that the outside design is different.

Pl. 51,4 (K 11241: 13) Small bowl in shape like the two preceding ones. Ware brick-red, recalling the Yang Shao Tsun ware. On the rim only one single dot of paint.

Pl. 51,2 (K 11241: 22) Fragment of urn with wide mouth and narrow rim. Ware brownish-grey. Paint much faded.

Pl. 52,3 (K 11241: 12) Fragment of large urn. Ware grey in the centre, chocolate brown at the surface.

Pl. 52,1 (K 11241: 14) Fragment of large urn. Ware as in Pl. 52,3. This is one of the very rare vegetable patterns of our painted ceramics. This plant pattern evidently formed a wreath round the neck of the urn.

Pl. 50,3 (K 11241: 3) Fragment of large urn with pronounced shoulder. In the lower part of the fragment the attachment of a lug.

Possibly only one side of the urn was painted (compare Pl. 56,1).

Ware brownish straw-coloured.

Pl. 52,6 (K 11241: 7) Fragment of large urn. Ware like that of the preceding specimen.

Pl. 51,5 (K 11241: 4) Sherd of urn with lug at the base and shoulder at the top. Ware chocolate-coloured.

Pl. 52,2 (K 11241: 1) Sherd of urn. Outside of ware straw-coloured.

Pl. 51,8 (K 11241: 18) Sherd of urn. Ware straw-coloured. In the painted design is a new instance of the «double-axe» (compare E. Ch. C Pl. XI,12).

Pl. 51,7 (K 11241: 20) Sherd of urn.

Pl. 51,1 (K 11241: 6) Sherd of urn.

Pl. 51,6 (K 11241: 11) Sherd of urn. Ware straw-coloured.

Pl. 51,3 (K 11241: 2) Sherd from neck of urn.

Pl. 52,4 (K 11241: 9) Sherd from neck of urn.

Pl. 52,5 (K 3232: 39) Ring-shaped object with painting on the outside. Ware pale chocolate-coloured.

* * *

From the thousands of painted sherds which we unearthed in the Ma Chia Yao site we have presented a small selection in Pl. 49—52. In addition we obtained through purchase in Lanchow or elsewhere in central Kansu a number of complete vessels of Ma Chia Yao type. A selection of these are here shown in Pl. 53—58. A further number, reproduced in Pl. 181—185, contain zoomorphic representations and are for this reason described in another section of this volume. However, a rapid glance at them will suffice to show that they belong entirely to the Ma Chia Yao group.

Pl. 53 a, b, c (K 5609) Bought in Kao Lan Hsien.

Wide bowl with flaring rim, in shape and painted design very closely related to Pl. 49,4. Height 110 mm. Outside diameter 285 mm. Diameter of bottom 105 mm.

Decor on the outside of the body simple, consisting of three undulating lines confluent in three places where they produce hooks bent upwards.

The inside densely painted: in the centre with concentric circles, on the sides with discordant groups of wave lines.

Rim painted with black rhombic fields containing a white circle with a central dot. The black rhombi alternating with white ones filled with fine black lines.

Pl. 54,1 a & b (K 5527) Bought in T'ao Sha Hsien, Ka Tu Ma Kou.

Small fragmentary bowl. Ware fine and homogeneous, pale brick-brown. Thickness of wall 3—4,5 mm.

Outside painting only wavy lines and hooks along the margin.

Inside sparse and simple linear design.

Pl. 54,2 a & b (K 5622) Bought in Nien Po Hsien, Mi La Kou, Hei T'u Chuang.

Big bowl with narrow, flaring rim. On the outside, over the widest part of the body, is a belt limited by two horizontal lines. Between these lines a system of wavy lines. Wherever the waves touch the upper or the lower line, there is a dot.

Inside decor: Round a central dot there is a circular, unpainted field, outside which there are 8 concentric circles. Outside this central group there are three high groups of wavy lines, and in the interspaces are three curls of double lines. At the base of these curls and outside their sharper bend is a dot.

The rim decorated with the same pattern as Pl. 53.

Pl. 55,1 (K 5216) Bought in T'ao Sha Hsien, Ka Tu Ma Kou.

High bowl, the outside of which is decorated with a broad marginal belt of wavy lines and dots between two broad horizontal lines.

Pl. 55,2 a & b. (K 6593) Excavated in Ma Chia Yao.

Basin with flaring rim. Diameter 351 mm. Height 160 mm. Two horizontal handles with indentations.

Interior painting in three groups, each with a centre consisting of three concentric circles or spiral lines with a point in the middle. Between these groups of lines there are concave triangles, one turned upwards, the other downwards, each with an unpainted field and a black dot in the centre. The points of the triangles continue in curved lines. All these lines seem to combine downwards into a system of spirals and innermost concentric circles covering the bottom of the vessel (of which only a small part is left). Upper part of the outside with spiral and wavy lines in three (?) groups.

Pl. 55,3 a & b (K 5481).

Basin with flaring rim. Bought in Lanchow.

Inside unpainted. Rim decorated with radiating, narrow triangles turned inwards and outwards.

Outside with framed-in trellis figures, narrow concave triangles and plant-like ovals.

Pl. 56, 1 a & b (K 5195) Bought in Lanchow.

High slender urn with two large lugs, crenelated on the outside.

Two concentric bands round the high neck. The painted decor on the body asymmetrical: one side a simple figure of two lines, the other richly decorated with a roughly drawn complicated pattern of spiral and horse-shoe figures.

Pl. 50,3 (K 11241: 19)

Seems to belong to this group of unilateral urns. In the Ma Chia Yao material there are larger fragments of such an urn apparently intended to be looked at from one side.

Pl. 56,2 (K 5276) Bought in Lanchow.

Broad urn with cylindrical collar, flaring at the top.

Upper half painted. Collar, uppermost part and widest part of the body with horizontal concentric circles. In between there is a zone of the usual wavy lines, dots and floral curls.

Pl. 57,1 (K 5264) Bought in Lanchow.

Small urn with high neck and flaring rim. Neck and the uppermost as well as the lower part of body ornamented with horizontal concentric circles. Above the equator a zone with trellis pattern.

Pl. 57,2 (K. 5187) Bought in Lanchow.

Urn with nearly cylindrical neck and two lugs. The black painting is so dominant that the light ware appears only as narrow stripes. Neck and lowest part of body with horizontal concentric circles. Over most of body, wavy lines surrounding two small rings.

Pl. 57,3 a & b (K 5261) Bought in Lanchow.

Urn of unique shape: Neck high, merging into the body. Two lugs just beneath the equator placed very low down.

The neck with three broad horizontal bands. Upper part of body with vertical, broad black bands alternating with light bands with 4 or 3 vertical narrow, black lines. At the equator a black horizontal band and a broad black band at the bottom. Between these a broad black wavy band, and above and below this wavy band alternating groups of narrow black bridge-shaped lines.

Diameter 178 mm. Height 203 mm.

Pl. 57,5 (K 5751).

Urn resembling in shape the Pan Shan funeral urns, but the painted decor that of a dwelling-site vessel.

Neck with broad horizontal bands. Zone of the lugs with two broad and five narrow horizontal lines. Narrow horizontal lines also at the base of the neck. Between these zones a belt with groups of narrow bridge-lines and in the triangular interspaces vertical dots.

Pl. 57,4 (K 5263).

Small jug with wide mouth and one lug.

Black band on the inside of the collar. A broad black band on the outside reaching below the collar. Body covered with broad oblique black bands alternating with light bands with three narrow black lines.

Diameter 115 mm. Height 92 mm.

* * *

The Ma Chia Yao site occupies a key position in our Kansu research. As we shall see in the following chapter, we are able to prove that Ma Chia Yao is strictly contemporaneous with Yang Shao Tsun. With the aid of the localities in S. Kansu a stable bridge is thrown across to link the Honan Yang Shao and the Kansu Yang Shao firmly together in spite of the provincial specialization.

Ma Chia Yao differs from Lo Han T'ang in not showing any feature characteristic of the Ch'i Chia P'ing stage. On the other hand, we find in Ma Chia Yao no parallel to the advanced patterns which in Chu Chia Chai forestall the Ma Chang stage. Between Lo Han T'ang with its Early Yang Shao furniture and the Late Yang Shao of the Chu Chia Chai site we have learnt to know the rich and homogeneous Ma Chia Yao furniture as the type of the Middle Yang Shao of Kansu.

* * *

When we stated above that the Ma Chia Yao site occupies a key position in our Kansu research, this is also true of the rich finds made in the burial sites of the Pan Shan Hills. For details the reader is referred to chapter 12. In this chapter we

shall prove, specially on the evidence of the rich grave of Pien Chia Kou, that the Pan Shan graves are probably representative of a comparatively short period of time, and that, archaeologically speaking, they may be regarded as belonging to one and the same period. We shall now advance a step further and shall have no difficulty in proving that the graves on the P'an Shan heights are contemporary with the Ma Chia Yao settlement. At first sight the ceramic material of the Ma Chia Yao terrace appears to be quite unlike the stately burial urns of the P'an Shan mountains, and we shall, indeed, find in what follows a fundamental divergence between them, though the essential difference relates to *custom* and not to *age*. Upon comparing the two ceramic groups we are immediately struck by the fact that in both cases the ware is the same, as also the black pigment used in both cases for the decoration of the vessels.

Decisive in the determination of their age is the fact that in the overwhelming majority of the 6,043 fragments of vessels which we brought home from Ma Chia Yao there occur a minority — very small, it is true, though significant — of fragments of P'an Shan urns. These consist in the first place of a large part of a badly painted vessel, which for that reason perhaps was rejected as useless. In addition, we have six small pieces of a finely decorated urn of the P'an Shan type.

This comparison gives us a clear insight into a circumstance which we consider to be of fundamental importance. We are here concerned with two ceramic groups of the same age, on the one hand a plentiful fund of domestic ceramics, such as we know best from Ma Chia Yao, and on the other hand a more stately group of burial urns, represented by hundreds of complete and well-preserved vessels. In all probability the discoveries of P'an Shan fragments in the Ma Chia Yao settlement may fairly be attributed to the fact that some at least of the potters making P'an Shan urns dwelt within the Ma Chia Yao settlement and had their workshops there. Now and then accidents occurred, an urn was occasionally broken, and the pieces were carried about the settlement by playing children, just as happened on a much larger scale to the pieces of pottery of the settlement itself. If this interpretation is correct, we shall find in the few fragments of P'an Shan urns at Ma Chia Yao evidence that this settlement represents one of the villages which buried their dead up on the P'an Shan mountains.

We are then confronted with the interesting fact that the people of Yang Shao age in Kansu had two kinds of pottery, one kind for living beings and a totally different kind for the dead.

The pottery of the settlement is distinguished by groups of wavy lines and other freely drawn figures, among them some which recall floating water plants and frogs. As regards form, there are on the one hand bowls richly painted inside and out, and on the other hand tall slim urns ornamented with much the same painted patterns as the bowls.

The burial ceramics of the P'an Shan mountains consist almost exclusively of urns, usually with a very narrow neck. Bowls also occur, but with quite inferior,

relatively careless painting. The large burial urns are painted with strictly determined patterns, among which we distinguish the following main groups:

1. Horizontal, concentric bands.
2. Four large spirals covering the whole of the upper half of the vessel.
3. Large gourd-like figures in the same position as the spirals.
4. Large rhombs.
5. Fields filled with a check pattern.

A remarkable and consistent feature of these burial urns is the fact that, however the various patterns are arranged, all of them contain a common element, to which I have given the name »death pattern», because it is restricted to burial ceramics, in contrast to domestic ceramics, in which this pattern is entirely lacking.

The characteristic features of the »death pattern» are best seen from Fig. 2 of my Prel. Rep. p. 13. From two black fields saw-teeth project towards one another, but between the saw-teeth there is a red or violet band which is just touched by the tips of the saw-teeth. Thus we may say more concisely that the death pattern consists of two opposite rows of black saw teeth with an intermediate band of red. It may be specially mentioned here that neither of these two elements of the design is to be found in the domestic ceramics of Ma Chia Yao, and it is especially striking that the red colour appears to be strictly forbidden to the living and to be exclusively reserved for the cult of the dead.

11.

YANG SHAO SITES IN SOUTHERNMOST KANSU.

In the spring of 1924 I sent my collector Pai to southernmost Kansu, from where thanks to a reconnaissance undertaken by the Rev. G. F. Andrew, we had indications of prehistoric finds in the vicinity of Chin Chow (T'ien Shui Hsien).

Pai's trip was very successful. In the upper reaches of the Wei Ho (tributary to the Yellow river) and the Chia Ling Chiang (tributary to the Yangtse river) he found a number of sites which offer considerable interest.

With its uppermost tributaries the Wei Ho comes very near the middle course of the T'ao Ho, where in the summer of 1924 we made such abundant finds (Ma Chia Yao, the rich dwelling site at the T'ao Ho, being in fact only some few tens of kilometres from the source of the Wei Ho). In this way Pai's finds became a very important connecting link between two somewhat divergent ceramic groups: the Yang Shao of Honan and the Yang Shao of Central Kansu.

Before we proceed to study Pai's finds it may be useful to outline the main characteristics of the painted pottery of Yang Shao Tsun compared with that of Ma Chia Yao.

The painted pottery of Yang Shao Tsun is *brick-red* in contrast to the straw-coloured ware of Ma Chia Yao. There are exceptions. Some Honan vessels are not oxidized and consequently dark grey. Some rare sherds from Ma Chia Yao are pale brick-red, but the dominant Ma Chia Yao ware is straw-coloured.

The overwhelming majority of the Yang Shao Tsun sherds belong to small *bowls*, most of them with a smooth simple margin. In the Ho Yin sites there are high vessels which should be named urns with wide mouth (E. Ch. C. Pl. XIV, 1—2). Similar fragments also occur at Yang Shao Tsun, but urn-like vessels are rare among the Honan painted Yang Shao, and *not a single painted urn with narrow mouth*, so common in the Kansu Yang Shao, *was ever found in Honan*.

So much for the shapes and the wares. The painted patterns are also different. First of all there is a marked contrast in the extent to which the bowls are painted. In Ma Chia Yao it is very common that the bowls are painted not only on the upper half of the outside but over the whole of the inside as well down to the centre of the bottom. In Honan the bowls are painted on the outside, in some cases down to the bottom. Moreover, the rims are often painted, mostly with a simple concentric line, more or less broad, though other simple patterns also occur. *Below the rim the Honan bowls are never painted on the inside*.

The great majority of Kansu designs are linear: freely drawn spirals, dense groups of concentric circles and groups of wavy lines. Triangles, generally with concave sides, are common to both areas. But at Ma Chia Yao we find in the centres of the triangles bare circular areas with a black round dot in the centre.

In some rare cases in Kansu we find plant and animal designs, which are never met with in the Honan Yang Shao.

A feature characteristic of Yang Shao Tsun is groups of lines, triangles etc., which run obliquely up to the rim.

In Ma Chia Yao all the painting is done in black. As we have shown in the chapter on this site, the red colour was taboo for the living and solely dedicated to the burial service.

In Honan a freer use is made of pigments. Black is the more common, but numerous vessels are ornamented in red. Mostly one or the other is used. Only in rare instances are black and red used together, often accompanied by a white slip.

When these characteristics have become familiar through prolonged practice there is hardly any difficulty in distinguishing a Honan sherd from those of Kansu.

* * *

Having made ourselves familiar with the differences between the painted pottery of Yang Shao Tsun and that of Ma Chia Yao, we must now return to the sites of S. Kansu in order to learn how they link up Ma Chia Yao with Yang Shao.

The following sites were found by Pai in S. Kansu:

Li Hsien, W 20 li, Shih Chiao Chen. (K 3006: 1—110). A fairly large and good collection of painted and unpainted pottery, clay rings, stone knives and other stone implements.

Among the unpainted sherds there are two of black pottery, Pl. 58, 21—22, which are briefly described in the chapter on »Black pottery». They are important as they form, together with a single sherd from Chu Chia Chai, the Kansu representatives of a ceramic group that is prominent in Yang Shao Tsun and dominant in the Lung Shan culture of Shantung.

This material contains a mouth-piece and a handle of brick-red ware, both of which probably belonged to the group of brick-red slender pointed vessels of which we have such splendid specimens from Chin Wang Chai of Ho Yin Hsien in Honan.

The painted sherds from this locality may be labelled as follows:

Honan type	22 sherds
Central Kansu type	5 »
Indifferent	17 »

Li Hsien, W 30 li, Pai She P'u (K 3007: 1—59).

A small but interesting collection containing, among other things, the bottom of a vessel with pointed bottom (Chin Wang Chai type, see above). Strange to say, the ware of this specimen is grey.

Painted pottery subdivided as follows:

Honan type	20 sherds
Central Kansu type	3 »
Indifferent	2 »

Li Hsien, S 3 li, Hung T'u P'u (K 3008: 1—41).

Small but interesting collection.

Honan type	3 painted sherds
Indifferent	1 » sherd
Brick-red broad, smooth, pointed bottom, one sherd	
Small sherd of an amphora of Ch'i Chia P'ing type	1 sherd

Tien Shui Hsien, SW 100 li, Liu Chia Shang Mo (K 3052: 1—209).

Large and important collection. Mostly painted sherds. Also two mouths, one bottom and one handle with adjoined wall of brick-red vessels with pointed bottom. A few stone instruments and clay rings.

The painted pottery was subdivided as follows:

Honan type	121 sherds
Central Kansu type	22 »
Local design type	11 »
Indifferent	14 »

Tien Shui Hsien, NW 5 li, Li Chia Wan (K 3187: 1—185).

Large, interesting collection. Mostly painted sherds. One very large restored bowl with narrow black band on the rim. Diameter 354 mm.

Numerous clay rings and bone instruments. A few stone objects.

Five fragments of brick-red vessels with pointed bottom.

Painted pottery:

Honan type	58 sherds
Central Kansu type	0 »
Indifferent	30 »

Tien Shui Hsien, E 7 li, Chi Li Tung (K 2353: 1—49).

Interesting collection, Ch'i Chia type prevailing.

5 painted sherds of Honan Yang Shao type

9 sherds of Ch'i Chia type

2 grey Li-tripod bottoms

1 mouth-piece of brick-red vessel with painted bottom

1 big stone ring

6 fragments of clay rings.

Ching Shui Hsien, near S wall of city (K 2352: 1—19).

11 painted sherds, Honan type

1 mouth of brick-red vessel with painted bottom.

We shall now describe the painted pottery of these sites.

Bowls with simple smooth rim:

With the exception of a giant bowl from Li Chia Wan (K 3187: 84), 354 mm. in diam., with a narrow black band over the rim, all are fragments shown in Pl. 58. They come from the following localities:

Li Chia Wan: Pl. 58: 1—8, 10—11

Shih Chiao Chen: 9

Pai She P'u: 18—19

Li Chia Shang Mo: 12, 14—15, 17, 20

They all consist of brick-red ware, more or less approaching the Yang Shao Tsun deep brick-red. All the black painted designs are also of the Yang Shao Tsun type.

Bowl with inward bent, 34 mm. broad rim.

Pl. 58, 13 from Pai She P'u, Ware, shape and decor all Y. S. T.-type.

Bowls with »bayonet» pattern.

This is a decor group not based on the shape, like the previous ones. The striking feature is that the painted decor is dislocated along a vertical line, as is shown specially clearly in Pl. 61, 1—2.

These patterns are reproduced in various plates as follows:

58,16
59,6
60,8
61,1—2, 4, 7.

They all come from one locality, Liu Chia Shang Mo, where this pattern seems to have been a special feature. All the 7 sherds are of brick-red ware.

Bowls with flaring rim.

The specimens shown in Pl. 59 are distributed amongst the following localities:

Li Chia Wan 1, 4, 8
Shih Chiao Chen 2, 5, 7
Li Chia Shang Mo 3, 6.

The ware is the deep brick-red seen in Y. S. T. ware. The patterns are a mixture of Y. S. T. and local designs, combined with some slight influence from the M. C. Y. type. All the specimens in Pl. 60 also belong to bowls with flaring rim. All have the brick-red Y. S. T. ware except 60,6, which has the straw-coloured yellow of M. C. Y. This specimen is painted only on the upper side of the flaring rim. The pattern is very striking and local. 60,4 has also a local zigzag design. Only in Chu Chia Chai do we find something similar.

The other specimens shown in this plate have designs in which the Y. S. T. influence prevails.

Pl. 61 has a varied content. Pl. 61,13 (Li Chia Shang Mo) is an unpainted bowl with a unique incised pattern on the basal part.

61,3 and 14 have fairly broad, upright rims. 61,10 is a bottom piece. All those which are not mentioned so far are sherds without either rim or bottom. 61,5 is very dark on the outside. All the others are of the brick-red ware. In the painted designs the Y. S. T. influence is dominant.

Pl. 62 represents urns, except figs. 6—9, which are bowls. Here the M. C. Y. influence predominates. Pl. 62,1, 3—5 have the greyish-yellow straw-coloured ware of M. C. Y. The rest, fig. 2, 6—8, are of the brick-red Y. S. T. ware.

Fig. 7—8 show Y. S. T. patterns.

Fig. 6 and 9 are the only ones from these sites painted with other colours in addition to the black. Fig. 9 has white borders round black leaves. Fig. 6 has also white borders round black concave figures. In addition, splashed over the black and white, is a red substance, resembling sealing wax. This arrangement was never seen in M. C. Y. but is known from a few Honan specimens.

Fig. 1—5 are typical designs of M. C. Y. urns with narrow mouth. It is interesting to note this powerful increase of M. C. Y. designs when we come to the urns. This type of vessel is very common in M. C. Y. but is never encountered in the Honan painted pottery.

The specimens of Pl. 62 are distributed amongst the following localities:

Li Chia Shang Mo 1—2, 4—5, 7
Pai She P'u 3
Li Chia Wan 6, 9
Shih Chiao Chen 8.

* * *

These sites in southern Kansu belong to the upper reaches of the river Wei Ho, along which the Honan type of the Yang Shao culture seems to have spread very widely. We are here quite near the watershed towards the T'ao Ho valley, and there is in the furniture of these sites in S. Kansu a marked Ma Chia Yao influence both in ware, shape and painted design. This influence is dominant in the urns with narrow mouth, a type of vessel never met with in Honan. At first sight I believed that some urns had been brought over from Ma Chia Yao as a result of barter or as plunder. But in the urns too there is a blending of influences in Pl. 62,2 — M. C. Y. pattern but Y. S. T. ware.

These sites in S. Kansu are very important as forming the link that proves that the Honan and the central Kansu Yang Shao sites are local facies of Middle Yang Shao, i. e. *are strictly contemporaneous*.

12.

FINDS IN THE PAN SHAN HILLS.

Five times during my years spent in excavating in China I had the good fortune to strike sites of unusual interest. The first instance was the discovery in April 1921 of Yang Shao Tsun, the first and the largest of all Stone Age sites examined by us. The second was the find of the Sha Kuo T'un cave, a cannibalistic sanctuary, in June of the same year.

During my long stay in Kansu from May 1923 to October 1924 three more similar instances occurred. One was the find in the autumn of 1923 of the Chu Chia Chai site with its rich village necropolis, the second was the surprise offered by the Pan Shan hills and the third and last was the walled-in places and burial grounds of the Chen Fan desert. Most spectacular of them all were the finds on the Pan Shan hills. Unfortunately, the circumstances surrounding their discovery led to the almost complete plundering of the whole of the sites by the local Mohammedan population before their existence became known to me. The events which led up to this development were related in my popular book *Children of the Yellow Earth*, from which I quote as follows (P. 251):

»The discovery of the rich, and in many respects unique, site at Chu Chia Chai in the Hsi Ning valley marks a turning point in my life. It determined me to remain in Kansu for one more summer, and it was the beginning of a series of great archaeological discoveries which caused me entirely to abandon my geological work in order to devote the rest of my life to archaeological research.

As soon as the Chu Chia Chai collections were finally packed, I moved my caravan by the shortest route to the provincial capital of Lanchow. On the outskirts of the town I rented a nice clean house, belonging to a Mohammedan of the name of Ma.

My position was now somewhat peculiar. The funds which the Swedish China Research Committee had placed at my disposal were only sufficient for a summer expedition, and it was expected of me in Sweden that I should be back in Peking in the late autumn. None of the numerous proofs of goodwill and confidence which the Committee has shown me can be compared with the readiness with which it agreed, after I had explained the situation in my reports, to finance at any cost a second season in Kansu.

My abundant discoveries at Chu Chia Chai had convinced me that important prehistoric treasures in Kansu only awaited someone to discover them, but at the turn of the year I had no idea where I should go. A kind fate then came to my assistance.

At that time there lived in the provincial capital of Lanchow a British missionary of the name of George Findlay Andrew. He was a man of about thirty-four, widely travelled, slim, and an enthusiastic explorer, who was most at home on the country roads and not adverse to adventure or danger. Owing to his cheerful, sunny temperament and his incorruptible honesty he was loved by foreigners and natives alike and, curiously enough, enjoyed the confidence both of the Chinese and of their arch-enemies, the Mohammedans. He was probably most interested in the latter and has written a book on the Mohammedans in Kansu.

When, in the latter part of November 1923, we returned to Lanchow, resolved to go into winter quarters in preparation for a new working season, Andrew invited me to give an address on our work to the schoolboys in his missionary school. I accepted the invitation in the hope of obtaining from the boys or their relatives information concerning the unknown sites of prehistoric civilization which more and more began to capture my interest. I consequently first gave an account of our geological and archaeological work and then asked the boys to make inquiries in various parts of the province as to the occurrence of burial urns and other prehistoric objects of the kind which we had found in the Hsi Ning district.

Some days later I received a short note from Andrew reading as follows: »I have something which may interest you. Come and look at it when convenient.»

I went to the mission station and there saw something which almost made my

knees give way beneath me; a strange feeling, never experienced before, of astonishment, joy, fear and wild hope overwhelmed me.

On the table in front of me stood a perfectly intact burial urn with wonderfully well-preserved painting. The type was well known to me from excavations at Hsi Ning, and it was instantly clear that this was a burial urn from the close of the Stone age, 4,000 years old, though this specimen was larger, and in particular more richly and more finely painted than anything I could imagine in these parts. This was a find which fully equalled, if it did not even surpass, the best that had been found of the same period in the Near East or the Eastern Mediterranean. It was a magnificent discovery, and I stretched out my hands, trembling with eagerness. But it was much more than that, it was a promise, above all things, of untold possibilities of other discoveries.

Andrew told me that the urn belonged to an ex-official who had been taoyin in Chinchow in Southern Kansu and that he was reported to possess some more urns of the same kind, which he, Andrew, would arrange for me to inspect.

Andrew had not in any way exaggerated. The other urns were more than double the size of the first, and one of them is, in respect of character and richness of design, one of our greatest treasures, even taking into consideration the fact that we subsequently obtained several hundreds for our collection.

I left the conclusion of the business in Andrew's hands and he conducted the negotiations with the owner so wisely and so discreetly that within a few days the five superb pieces were our property at a price which must be regarded as moderate. I cannot let this opportunity pass without acknowledging my great debt of gratitude to the Rev. G. F. Andrew, who subsequently spent a whole month on reconnaissance for our account with exceptionally good results, and who, finally, took a large consignment of no less than 150 of our collection-cases safely and in good condition to Peking.

The acquisition of five magnificent burial urns spurred me on to further endeavours during the winter to make additional purchases and thereby to prepare for the coming working season. I visited all the dealers in antiques in Lanchow, but found that they knew nothing of the prehistoric burial urns. As a result of repeated inquiries, however, some further fine specimens came into my possession, and there gradually developed a formal trade in these burial urns, many of which had evidently been preserved for a long time in the homes of modern Chinese, to judge from the varnish and the dust with which they were covered.

The supply of these clay vessels, so important to me, was at first small, and prices rose higher every week, especially as Chinese officials and other private persons in the town had heard of my purchases and began to compete with me for the best pieces. A number of rare objects which I should most gladly have incorporated in my collection were lost to me, while at the same time my own purchases had made very serious inroads on my treasury. For a time things looked very black.

My utmost desire was, naturally, to discover the places from which these fine burial urns came, but all attempts to induce buyers to reveal their secret were unavailing. We soon discovered that all information on this point was, to say the least, unreliable. If a buyer said an urn came from the north, one could be pretty certain that it had been found in the south, and we soon realized that there was no purpose in making such inquiries.

But then, at the beginning of March, much larger quantities of these urns began to arrive, and I could easily see from their appearance that many of them had been dug out of the earth quite recently. The supply of material had now become so abundant that I was able to choose and take only especially fine specimens or rare types. And I foresaw with certainty that one day I should be able to force down prices.

Every day there came to my house three or four different groups selling urns, and there was endless bargaining, whilst frequently in a single day thirty-odd urns or more would pass through my hands. I soon understood, however, that the various sellers had formed a syndicate, the members of which had undertaken not to accept any reduction in prices. I felt as if I stood before an insurmountable wall, and my money melted away with alarming rapidity.

Then one morning I had no less than six groups of sellers, representing at least fifty urns, in my house, and I thought the time had come to venture my coup.

I selected from the various groups a score of urns which I wished to acquire and offered for them prices which were very liberal, though somewhat less than the highly exaggerated prices which I had hitherto been obliged to pay. The Chinese looked questioningly at each other and shook their heads as a sign that my offer was not acceptable.

I made a little speech to them somewhat in the following terms:

»You know that these urns had no value till I came here. Nobody before me asked for them, and if I go away from Lanchow the demand will soon disappear, for the people in the town only buy them because I am interested in them. I am willing to pay you generous, but reasonable prices. If you don't agree I must leave the town and do some other work. Think it over and let me know what you decide.»

I waited a little and then added:

»You must accept my offer or leave my house.»

I saw a sign from the one who seemed to be the leader, and then they all nodded in confirmation that the matter was agreed and my price accepted.

During the following days the situation developed with the speed of an avalanche. My house was positively besieged by groups of men wanting to sell me urns. It was said that out on the roads men were seen time after time carrying urns to Lanchow. The sellers willingly admitted that there was a positive flood and that previous prices could not be maintained. On the contrary they were very pleased with my offers, for I did not wish to depress prices too much, as I

desired to explore to the full this perhaps non-recurrent hausse in order to enrich my collection. But by degrees it became difficult for me, from mere considerations of space, to purchase any more, and my selection became more severely discriminate with every day that passed.

I now thought that the time had come to make a resolute attempt to discover where these quantities of large, superb, prehistoric burial urns came from.

I called in my most trusted man Chuang and had a confidential talk with him. I said:

»Chuang, here are fifty dollars; go and make friends with the urn dealers and their assistants. Urns are now so cheap that it will not be difficult to find out where they come from. Entertain the fellows, if necessary, but don't come back until you can tell me where the place is.»

Chuang vanished for two whole days, but then one morning he turned up looking pale and with trembling hands, but beaming with joy and eagerness.

»Anlaoyeh», said he, »now I want one of the horses and 200 dollars and I shall perhaps be away a week.»

I knew my man and knew that he would not betray my trust. He got what he asked, and the strongest of our horses was put at his disposal, for I knew that it would be an arduous reconnaissance.

Chuang was away a week; then he returned with a whole mule caravan laden with large and splendid burial urns, among which I noticed one of an entirely unknown type, which certainly belonged to a hitherto unknown prehistoric period.

He reported that he had journeyed over 200 Chinese li to the south to the neighbourhood of the town of Titao, in a district on the western bank of the T'ao River, populated entirely by Mohammedans. There he had been able to see the cemetery from which most of our fine large urns had come. Owing to the demand which we had created for these prehistoric relics, the Mohammedans had collected them in their hundreds in the old cemeteries. They had dug planlessly right and left, and when different parties came into conflict they had fought regular battles, in which one day a man with a spade had struck off the hand of his opponent. The consequence had been that the official in charge of the district in question had sent soldiers to see that no further excavations were made.

I now clearly understood that as a result of our purchases a most deplorable spoliation of graves in these prehistoric cemeteries had taken place, and in order to do what I could to prevent further violation I visited the governor and suggested that he should instruct the local authorities to see that the local population should not commit further outrages against these precious scientific monuments of ancient civilizations.

We prepared for several months' absence from Lanchow and broke up for the south on April 23rd, in order to explore these new sites which the urn traffic in Lanchow had brought to our knowledge.

Our road first followed barren mountain tracts, but on our second day's march

we descended into the T'ao valley, a tributary valley of the Yellow River, and it was a great surprise to me to find at a height of 1,800 metres above sea level such a rich and smiling landscape (Pl. 2 B). It was a broad open valley, the flat bottom of which was perfectly watered by numerous irrigation canals, and in which every square foot of ground was cultivated to the maximum, thanks to the natural rainfall and to irrigation. This flat valley is bounded on both sides by terraces about 50 metres high, and on the terrace level there are small villages which support themselves by the cultivation of such crops, principally wheat, as are possible without artificial watering, and by the use only of the natural rainfall.

Lower down on the carefully watered river level they cultivate partly wheat and also, to a large extent, the opium poppy. It was an extremely lovely sight to see these fields of poppies in bloom, but the beautiful landscape had a gloomy obverse side, inasmuch as the population, driven by the greedy officials, had extended the cultivation of the poppy to such an extent that there was not sufficient ground left for the cultivation of the necessary cereal crops.

In this lovely valley apricots and peaches were also grown, especially the latter, of such a size and aroma as I have never seen before. The American missionaries who were stationed here also told me that the T'ao peaches could successfully compete with the best Californian. This beautiful valley is one of the most fertile and smiling districts I have seen in China, and, in spite of its height above sea level, it is much more productive than the Peking plain, which is at sea level.

During the later Stone Age, when Man occupied the T'ao valley, the river level was very different from what it is now. The river wound then, as now, in various branches across the flat bottom of the valley, but, from all appearances, brush-wood grew on the islands between the streams and on the valley sides beyond the river area. In this *primaeval* wood there was certainly an abundance of big game to hunt, especially deer, which were a favourite prey of the Men of the Stone Age. But the brush-wood was marshy and impenetrable, and beasts of prey rendered it dangerous. The well-stocked hunting grounds offered by the forest were therefore not a safe habitation for human beings.

It is in this circumstance that we must seek the explanation of the fact that the old settlements were, topographically, quite different from the modern. The river plain is now a well tended and well watered garden. All the large villages are situated close to the main roads and have abundant supplies of water.

None of these attractions existed for the Stone Age Man, who therefore chose his habitation on sites quite different from those of a modern man. On both sides of the T'ao valley, but more highly developed on the eastern side, there runs a terrace 50 metres in height rising steeply from the river plain. This represents the Ma Lan stage, with which we have become acquainted both in the Western Hills near Peking and in the Kuei Te valley. The Ma Lan terrace here shows

the same topographical features as in the Peking district and in Kuei Te: it rises by a steep erosion slope above the present river level. The surface of the terrace is cut up into lobes, separated by small gorges, and here and there we find detached island remains of the former connected terrace. It was precisely these terraces which tempted the Stone Age man to settle there. There they found on their arrival a natural fortress: a dry, flat surface on which it was easy to build their villages, and all round were inaccessible cliffs which were easily defended against an enemy. This type of terrace settlement we know already from Lo Han T'ang in the Kuei Te valley, and here in the great open T'ao valley we find similar terrace islands at Ch'i Chia P'ing, the oldest of the prehistoric villages, at Hsin Tien, where first the Yang Shao people built a village and where, much later, the people of the Bronze age occupied the same place. Finest and most typical of all these prehistoric villages built on terrace islands is, however, Hui Tsui, the Bronze Age village that yielded such rich discoveries.

When, on April 23rd, we rode across the T'ao valley, I was conducted by Chuang to the large village of Hsin Tien, in the neighbourhood of which, in the small village of Kuo Chia Chuang, we found simple but pleasant quarters close under the terrace cliff. During the weeks that followed we found the Hsin Tien district a veritable eldorado for archaeologists. The geologist P. L. Yuan, who accompanied me on this occasion, carried out during the month of May a detailed survey of the Hsin Tien district. His survey, with 5-metre curves, gives an extraordinarily fine picture of the dependence of the prehistoric settlements upon the terrace topography.

A little south of Kuo Chia Chuang, where we lived, a little stream, Chi Chia Ho, runs into the main valley. On the southern side of the ravine rise two terrace islands, the outer, westerly one being occupied by a large modern building (fortress?), which I had no time to examine closely. The inner, easterly terrace island, on the other hand, is completely covered by a cultural deposit, of which the main mass consists of Yang Shao material with a sprinkling of Bronze Age fragments in the surface deposit.

On the northern side of the Chi Chia Ho ravine and directly east of, and above, our village of Kuo Chia Chuang lay a Bronze Age cemetery — the richest of those that were already known to us. A large part of the Bronze Age graves had been excavated before our arrival and the vessels contained therein had been purchased by me in Lanchow. Happily there still remained a sufficient number of graves to give us an adequate picture of the burial customs of the Bronze Age.

Farther to the east, in the interior of the terrace, the Chi Chia Ho ravine divides into two branches, and in the peninsula between them we found a third cultural deposit, quite different from the two already described and belonging to the first stage of the Stone Age, Ch'i Chia.

The Hsin Tien district provides an excellent sample of the extraordinary wealth of our discoveries in the T'ao valley. We find here, within an area only one

hundred metres square, three productive cultural deposits, a dwelling of the first stage of the Stone Age, Ch'i Chia, a dwelling of the Yang Shao period, and a very rich Bronze Age cemetery.

When we had finished with this cemetery we all moved some distance up the valley to the village of P'ai Tzu P'ing in the Ning Ting district, on the west bank of the river. On that side of the river the population is predominantly, if not entirely, Mohammedan. The population of P'ai Tzu P'ing was exclusively Mohammedan, and I now had an opportunity of seeing how they lived. They are all called Ma, rendered by the Chinese written character for «horse», which, however, is said to be derived from the first syllable of the prophet's name.

From our head-quarters at P'ai Tzu P'ing we surveyed some prehistoric graves near that village, and, above all, the large and important Ch'i Chia P'ing site which we have already mentioned.

We had now arrived at midsummer, 1924. We had already spent two months in the T'ao valley, working eagerly to establish order in the confusion of prehistoric sites, of varying age, which we encountered here. During the whole of this time, as we worked up from site to site, I had always in mind the recollection of Chuang's lively account of the remarkable cemeteries from which we had purchased such quantities of large and magnificent painted urns in Lanchow. It was not until June 26th that I myself had an opportunity of visiting the sites.

We left our quarters at P'ai Tzu P'ing down on the Ma Lan terrace early in the morning, accompanied by Chuang and two Mohammedan porters and guides. All the cemeteries of the prehistoric period in question which we had hitherto examined had been situated close to their respective dwelling-sites, or in other words, the prehistoric habitations and cemeteries had lain side by side. It therefore seemed to us most surprising when our guides led us out of the valley higher and higher up the western slopes. We ascended hundreds of metres. The fertile valley bottom now lay far below us like a deep green ribbon, and the view began to extend over distant valleys which I had not seen before. I asked the men if we should soon arrive at the graves.

«No», they answered, «higher, much higher, up.»

Two hundred metres higher up we rode along paths which wound in sharp curves up the steep valley side. We had now reached an entirely different landscape. There was an open view for 50 km. on all sides. I looked out upon a number of hills and ridges, all of about the same height, and thus constituting an old, but now broken, plateau, which in the east continued as far as the horizon, but on the south and west at a distance of about 30 miles was bounded by a high dark wall of mountains which marks the boundary of the Tibetan highlands. We were now 2,200 metres above the sea, and the mountain wall to the south-west was between three and four thousand metres high.

We had reached a height from which we had a completely open view in all directions. Here I saw the traces of extensive excavations, and in the earth

thrown up were visible everywhere fragments of painted vessels of the same kind as the magnificent, intact vessels which we had bought at Lanchow. It was evident that many vessels had been crushed in the graves by the pressure of the earth and that others had been broken in the competition of the villagers to despoil the old graves of their treasures.

The extent of the cemetery was clearly indicated by the recent excavations, which had fairly completely plundered the whole of the site. The cunning Mohammedans had made yard-long iron probes, with which they had dragged the ground and with striking accuracy localized every burial urn which was not more than one metre below the surface.

After we had hastily examined this first site, my guides conducted me to a second cemetery of the same kind, and it soon became clear to me how many hundreds of graves containing burial ware of unique size and beauty had been looted by a desecration which had for all time rendered impossible a scientific investigation of the connection between the various objects in the graves. It was poor comfort that we had been able to acquire by purchase almost all the more interesting burial urns. It is more important that, but for the large-scale dealing in urns in Lanchow, we should not have known at all of the existence of these remarkable sites.

When I had thought out, with very mixed feelings, the course of events, I sat down and tried to reconstruct the conditions under which these, in many respects unique, accumulations of graves had come into existence. Each of the five grave sites is situated on one of the highest hills in the district, surrounded by steep and deep ravines, 400 metres above the floor of the neighbouring T'ao valley (Pl. 2 A and fig. 24). Continued investigation fully confirmed my first surmise that these cemeteries, situated on the highest hill-tops, must have belonged to the habitations of the same period down on the valley terraces. It then became clear that the settlers in the T'ao valley of that age carried their dead 10 km. or more from the villages up steep paths to hill-tops situated fully 400 metres above the dwellings of the living to resting places from which they could behold in a wide circle the place where they had grown up, worked, grown grey and at last found a grave swept by the winds and bathed in sunshine.

It must indeed have been a strong, virile and nature-loving people which was at pains to give to its departed such a dominating resting place, and as I sat there on a grave mound that sunlit day in June I tried in imagination to reconstruct the funeral procession which assuredly wound its way slowly with great pomp and now for ever forgotten ceremonies up the mountain sides.

It was now a question of saving what remained of undisturbed evidence of the old graves, and in order to facilitate my work I removed the whole of my staff to the nearest farm where suitable quarters could be obtained.

This farm happened to belong to a rich young Mohammedan of the name of Ma, who was so exceedingly kind as to place his best house at my disposal and another at that of my servants and soldiers.

BURIAL SITES OF THE PAN SHAN AREA NING TING HSIEN, KANSU.

Surveyed June 1924, J. G. Andersson.

The altitudes (all negative, except one, (+5) at Pan Shan) are counted from the small hill-top (O) NE of the Wa Kuan Tsui burial place.

 Burial place

Scale 1 : 25 000

0 1000 2000 m

Magn. N.

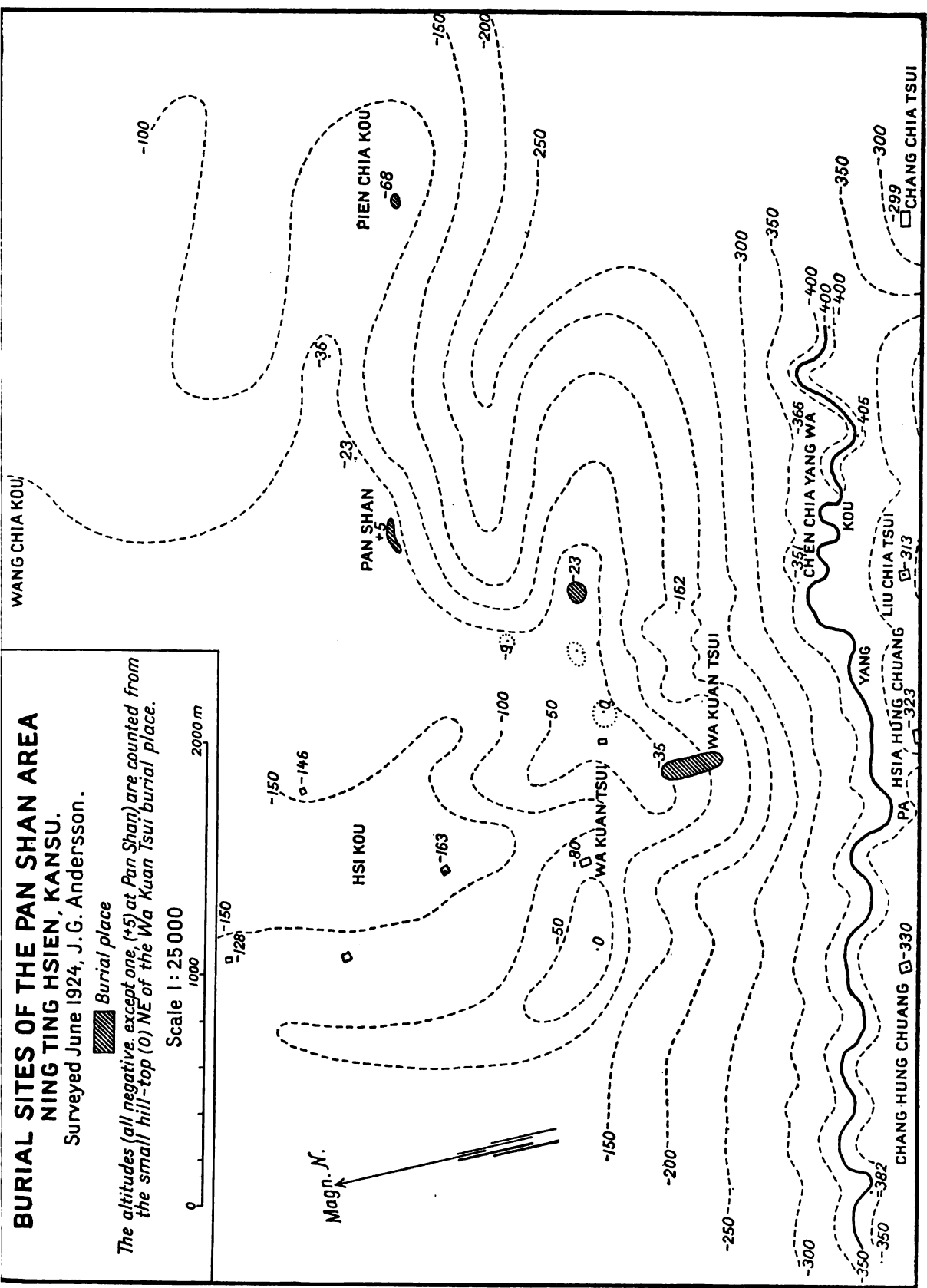


Fig. 24.

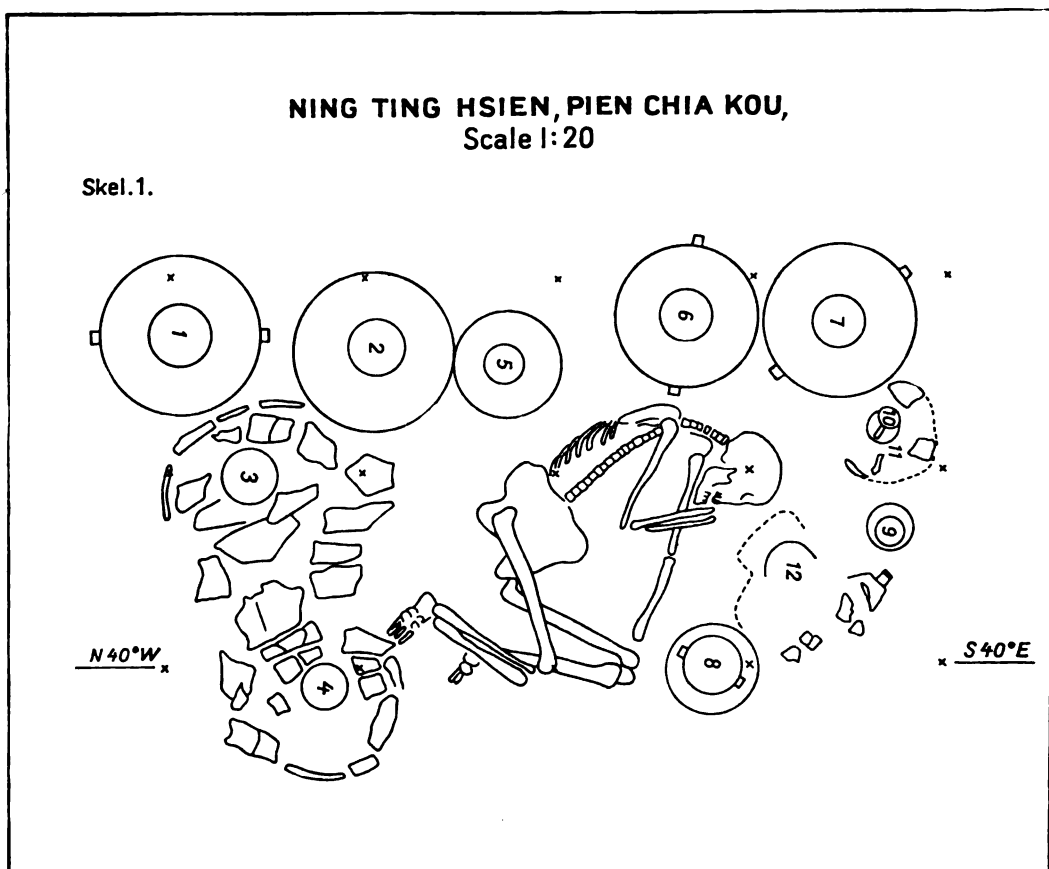


Fig. 25. The Pien Chia Kou grave.

For a long time we sought for graves which had escaped the ravages of the villagers. For several days it looked as if the whole district had been completely plundered, but finally Chuang made a magnificent discovery at Pien Chia Kou. It was, in fact, the most splendid grave which we found during the whole of the Kansu expedition. (Pl. 199 and fig. 25).

One exquisitely painted jar after another was laid bare during our careful excavations, and in the end we beheld twelve burial urns placed round the skeleton of a full-grown man, who lay on his left side with his knees drawn up. Two polished stone axes and two whetstones close to his head completed the ample equipment of the grave.

It was not possible to complete the major excavation the same day as that on which we made the discovery, so I had one of our small tents pitched on the spot and left the two soldiers to guard the site. Early the following morning I was up on the mountain, but found the situation changed in an alarming way. The whole

slope was swarming with Mohammedans. One of the soldiers met me a short distance down the slope, evidently much perturbed.

»Anlaoyeh,» he said, »many Mohammedans have come, more than 200. I am afraid they will make war on us. Cannot Anlaoyeh make haste with the old man's bones so that we can go back to Titao? I think that would be best.»

We had now reached the cemetery and I saw to my indescribable joy that nothing had been touched in the grave. But round about sat a couple of hundred men from the villages, looking very serious.

In the middle of the crowd, on one of our tarpaulins, which one of the soldiers had laid out, sat an old Mohammedan with large horn spectacles on his nose. He looked very venerable and pleasant. He rose up and advanced to meet me. We saluted each other according to all the rules of Chinese etiquette. Then we sat down together on the tarpaulin and began to talk.

He explained that our excavations had aroused general hostility in the neighbourhood and that he expected serious difficulties if I did not kindly abandon the work and leave the district.

I saw that there was little prospect of defying such a widely held opinion. I therefore decided to concentrate entirely on the unique grave which was for the most part laid bare before our eyes.

I told him that I was quite willing to agree with him and to undertake not to look for any more graves, but I made clear to him at the same time that under all circumstances and without regard to what the villagers proposed to do, I was resolved to complete the excavation which we had begun the previous day.

He explained that he fully understood my point of view and promised to order the men present to give me every assistance during the day on condition that this would be the last excavation. Thus we became good friends and in the end I took a photograph of the original old gentleman.

Towards midday we had the grave so cleaned up that I could take my photographs and make the necessary detailed measurements. (Fig. 25). Whilst I was doing this I saw a dark bank of cloud mounting up in the west and I knew only too well what that meant. We hurried on our work as much as possible, and just as we had collected the last bones of the skeleton the first raindrops fell.

We then hastily retreated to the little tent, where we sat for several hours, packed like sardines in a box, among urns and packages of bones, with a torrent of rain streaming down around us. At dusk the rain abated somewhat and we wandered back to Ma's house over steep mountain paths, which were now so slippery from the rain that the men had to dig down to dry earth with their spades in the most difficult streams.

Just as the T'ao valley with its confusing maze of prehistoric sites will certainly one day in the future be regarded as one of the foremost fields of prehistoric research in the world, ranking with the rich sites of the Eastern Mediterranean, the Nile valley and the river areas of the Tigris and the Euphrates, so also we may

say without the least exaggeration that the Pan Shan district, with its five cemeteries high up on the hill-tops, is one of the most magnificent burial-places left to us by prehistoric peoples. It is true that the graves were here invisible beneath their grass covering when the great spoliation began in the spring of 1924. No giant megalithic structures bore witness here to the industrious and virile people slumbering in the windswept graves. But in the majestic free situation of the cemetery, as in the perfect modelling of the burial urns and the finished beauty of their decoration, following inexorable laws of design, these burial-places are perhaps without parallel in the history of the human race».

Unhappily, owing to the great desecration, we know too little of the position of the dead in the graves, as also of the burial furniture surrounding them.

We have now recorded the events which led up to the Pan Shan finds and also related the episode with the local population which abruptly stopped our surveying activities in the Pan Shan hills. After a brief outline of the topographical features we shall describe the objects found. This description is here made complete and definite. In that respect the present chapter exceeds the limits of this volume, but the Pan Shan finds are of such unique importance that they demand already here a description in full.

Topography of the Pan Shan hills.

The situation of the Pan Shan hills is well shown by the section across the T'ao valley and surroundings which I published in Pl. XII of my »Preliminary report on archaeological research in Kansu«.

The T'ao river, which, opposite the Pan Shan hills, flows at an altitude of approximately 1,800 m. above sea level, has cut down a broad open valley through the probably Tertiary Kueite red beds. On both sides of the broad flat river-plain the hillsides rise in terraces up to 400 m. above the river-valley, where we stand upon a dissected peneplane, which, at a level of 2,200 m. above the sea, extends far to both sides of the T'ao valley. The Pan Shan hills occupy a small area of this elevated plateau.

The largest of the burial sites is Wa Kuan Tsui (Pl. 2 A). Not quite a kilometre E from Wa Kuan Tsui is another, small site, and 1600 m. NE from Wa Kuan Tsui is the Pan Shan hill and site in a central position, which has given this name to the whole area. 1500 m. E from Pan Shan is Pien Chia Kou, and 1800 m. N from Pan Shan lies Wang Chia Kou, a site which I never had opportunity to visit. On this point my map (fig. 24) drawn to the scale 1: 25,000, is deficient.

Urn purchased at or near the Pan Shan hills.

Numerous magnificent mortuary urns which — to judge from their type — probably came from the Pan Shan hills, were bought in Lanchow before we knew about these sites. These urns are marked in our catalogue and in Palmgren's monograph »bought in Lanchow.«

During his reconnaissance trip which made us acquainted with the sites of the T'ao valley, including the Pan Shan sites, Chuang obtained while at the Pan Shan hills a large number of urns, and others were purchased by me during our visit there in June. These specimens are marked in the catalogue and in Palmgren's volume in most cases with individual hill-names such as Wa Kuan Tsui, Wang Chia Kou etc. While most of these names are in all probability correct, there is always the possibility that a villager may have chosen another hillname which he thought might catch a higher price. As the four sites seem to contain much the same type of funeral ware, this uncertainty does not have very much bearing on the study of the material. For all urns bought at or near the hills the locality »Pan Shan area» seems to be quite safe.

Stone objects bought at the Pan Shan hills.

When Chuang visited these hills in March and April 1924 he bought from the local population several small lots of stone objects said to have been found when digging in the prehistoric graves.

During the days I stayed with my men at the Pan Shan hills (June 26—July 2) I personally bought numerous stone objects which rank among our most valuable finds. This deserves careful recording:

One day when I was studying the diggings at Wa Kuan Tsui there came to me an old Chinese who lived in a cottage only 250 m. from the grave field. He told me about the weeks in the spring of the same year when the Mohammedans came there in hundreds to dig for painted urns. On the evening when the Hui-hui (Mohammedans) had left, the old Chinese used to steal over to their diggings in search for valuables and he kept in his cottage a lot of things that he was willing to show me. We went over to his place and there he showed me a quite surprising hoard of important specimens. In a basket, among straw and rubbish, he had stored 66 specimens (K 1386—1451): Stone axes and stone knives, rings and chisels of jade etc. For the small sum of a few dollars the whole lot passed into my possession.

Here is given a condensed list of the objects bought from »Old man».

- K 1386. Large thin axe. Pl. 67,2.
- K 1387. Large axe. Pl. 64,2.
- K 1388—1391. Various inferior axes.
- K 1392. Corroded axe. Pl. 66,3.
- K 1393—1395. Various inferior axes.
- K 1396. Pen of dark jade. Pl. 71,3.
- K 1397—98. Inferior axes.
- K 1399. Knife. Pl. 70,3.
- K 1400. Knife. Pl. 70,2.
- K 1401. Thin axe with hole. Pl. 66,4.
- K 1402. Big chisel with hole. Pl. 67,3.
- K 1403—1406. Inferior specimens.
- K 1407. Chisel. Pl. 69,7.

- K 1408—09. Inferior specimens.
- K 1410. Unique stone implement. Pl. 69,5.
- K 1411—12. Inferior specimens.
- K 1413. Thin rectangular object of grey-green jade. Frontispiece 1,4.
- K 1414. Partially cut piece of jade. Pl. 73,3.
- K 1415. Pen of chalcedony. Frontispiece 2,11.
- K 1416. Partially cut piece of jade. Pl. 71,8.
- K 1417. Jade-ring, rounded quadratic. Pl. 71,4.
- K 1418. Big axe. Pl. 63,2.
- K 1419. Big axe. Pl. 65,3.
- K 1420. Inferior axe.
- K 1421. Big thin Pen. Pl. 68,1.
- K 1422. Inferior axe.
- K 1423. Big thin Pen. Pl. 68,4.
- K 1424—26. Inferior axes.
- K 1427. Axe. Pl. 65,1.
- K 1428. Inferior axe.
- K 1429. Fragment of Pen. Pl. 69,3.
- K 1430. Axe. Pl. 69,2.
- K 1431. Axe. Pl. 65,2.
- K 1432. Inferior axe.
- K 1433. Big Pen. Pl. 67,1.
- K 1434. Axe. Pl. 64,1.
- K 1435—36. Inferior axes.
- K 1437. Broad perforated axe. Pl. 70,8.
- K 1438. Knife. Pl. 70,1.
- K 1439. Fragment.
- K 1440. Pen. Pl. 69,6.
- K 1441. Small broad Pen. Pl. 69,4.
- K 1442. Small broad Pen of chalcedony. Pl. 73,6.
- K 1443. Huan-Yuan ring of variegated greenish marble. Pl. 71,2.
- K 1444. Yuan marble ring in three sections. Pl. 72,5.
- K 1445. Fragmentary Huan-Yuan ring of variegated greenish marble. Pl. 71,6.
- K 1446. Huan-Yuan ring of green spotted jade. Frontispiece 1,2.
- K 1447. Huan-Yuan ring of greenish variegated jade. Frontispiece 1,1.
- K 1448. Fragmentary Yuan ring of crystalline mineral aggregate. Pl. 72,2.
- K 1449. Thin elegant chisel of dark green jade. Frontispiece 1,3.
- K 1450. Pendant of white marble. Pl. 72,1.
- K 1451. Thin, cut fragment of jade. Pl. 71,7.

In order to prepare for the following discussion on the authenticity of these objects, the reader may find it useful first to study the description of them: axes, chisels and knives: P. 120—124 (Pl. 63—70), semi-precious stones: P. 124—129. (Pl. 71—74 and two frontispiece plates).

From the viewpoint of the scientific archaeologist as well as from that of the art connoisseur this collection of 66 objects is nothing less than a treasure. It is true that many of them are inferior duplicates which are not considered worth describing here. But some of the axes, such as K 1418, K 1434, K 1387, K 1427, are perfect and very beautiful. K 1421 and 1423 offer us a new type of adze. The

knives in Pl. 70 are among our best specimens. But most conspicuous are the semi-precious stones: jade rings like K 1446, 1447 would be treasured in any collection, and the thin chisel K 1449 is an object of rare delicate beauty. In any antique market these jade objects would have fetched prices immeasurable higher than the small sum I paid. I emphasize this fact only to show that the objects could not have been brought there in order to deceive me, in which case they would certainly have demanded an enhanced price. Upon taking all the circumstances into consideration I have no doubt that the man told me the truth and that he had actually picked the specimens from amongst the dumpings of the grave-plunderers.

In fact, there are features among the finds which coincide with objects found in our own scientifically conducted excavations. The majority of stone axes belong to the two types, one true axe and one thin adze, which are represented by the two specimens found in the Pien Chia Kou grave (Pl. 75). Furthermore these two Pien Chia Kou stone-implements have on them sparingly, and two pots from the same grave profusely, the same kind of lime incrustation as that which covers large parts of the stone axes bought from «Old man» at Wa Kuan Tsui. One of the jade chisels bought from Old man also has this kind of incrustation. For these reasons I feel convinced that Old man's statement is correct, i. e. that the stone objects bought from him were picked from the excavation dumps in the Wa Kuan Tsui graves.

In addition to the big hoard bought from Old man we acquired from local men some small collections said to have been found in the Pan Shan graves. These smaller collections are as follows:

K 1621—25. Pan Shan area.

K 1621. Knife Pl. 70: 6.

K 1622. Axe. Pl. 66: 1.

K 1623—25. Axes, duplicates, not described.

K 1632. Perforated marble ball. Wa Kuan Tsui. Said to have been found by the hand of a skeleton. (Pl. 70,7).

K 1818—1822. «Lao Pan Shan».

K 1818. Chisel.

K 1819—22. Axes, all inferior duplicates.

K 1823. Pan Shan, slender axe, inferior, not described.

K 1824—34. Pan Shan area.

K 1824—33. Inferior stone implements.

K 1834. Pen. Pl. 69,1.

K 1835—39. «Lao Pan Shan».

K 1835. Knife. Pl. 70,5.

K 1836. Small axe. Pl. 69,8.

K 1837. Piece of amazonite. Frontispiece 2,13.

K 1838. Small stone object.

K 1839. Thick chisel of dark green jade. Frontispiece 2,12.

K 1840—45. Pan Shan.

K 1844. Adze. Pl. 68,2.

The rest not described duplicates.

K 1895—96. Pan Shan.

K 1895. Knife. Pl. 70,4.

K 1896. Adze. Pl. 68,3.

K 1897. »Lao Pan Shan». Axe.

K 11026. Wa Kuan Tsui. Large jade ring, bought by Chuang April 24, 1924. Said to have been found upon the chest of a skeleton without pots. (Pl. 71,10).

K 11029: 1—8. Wa Kuan Tsui. »Said to have been found in refuse from the diggings of the villagers.»

K 11029: 1 & 2. Turquoise pendants. Frontispiece 2, 3 & 7.

K 11029: 3—7. Very minute turquoise pieces. Not specifically described.

K 11029: 8. Small bone point.

K 11031: 1—6. Pan Shan area. These objects were bought by me at the foot of the Pan Shan hills, in the house of Ma, our Moslem host.

K 11031: 1 a—c. Numerous marble beads. Pl. 72,3—4.

K 11031: 2. Amazonite crystal. Frontispiece 2,14.

K 11031: 3—5. Turquoise pendants. Frontispiece 2, 1, 4, 5.

We have now completed the list of stone objects bought at the Pan Shan hills. It should be added that during the first days of our stay in that region we made some small diggings in the Wa Kuan Tsui grave field, called Skel. 1, 2 and 3. The result was very poor. We could not convince ourselves that the objects found belonged to undisturbed graves. The pottery was only fragmentary and three of the axes were of poor quality. We cannot quote these diggings as authenticated graves, but the objects retain a certain documentary value as we actually dug them out of the soil. The two best axes K 1616 and K 1619 are described below.

The numerous and exceedingly important finds of stone objects from the Pan Shan hills are described in the two following sections: »Stone implements from the Pan Shan hills» and »Semi-precious stones found in the Prehistoric sites of Northern China.» In this second part I have included also finds from our excavations in the village cemetery of Chu Chia Chai (Late Yang Shao age), two other Kansu finds, and also a few finds from the Honan sites. This arrangement enables us to show how completely the objects *bought* at the Pan Shan hills fit in with the finds from our systematic excavations at Chu Chia Chai etc.

Stone implements from the Pan Shan hills.

Pl. 63,1 (K 1616) Wa Kuan Tsui. »Skel. 1».

Long slender axe with narrow neck. Grey hard rock with slightly coloured bands. Only the front part polished.

L. 234 mm. Br. 61 mm. Th. 32 mm.

One side covered with very heavy lime incrustation.

Pl. 63,2 (K 1418) Wa Kuan Tsui. Bought from Old man.

Heavy axe with rectangular cross-section and narrow, rounded neck. Grey rock. Only the front part polished. One side covered with lime incrustation.

L. 261 mm. B. 68 mm. Th. 50 mm.

Pl. 64,1 (K 1434) Wa Kuan Tsui. Bought from Old man.

Medium-sized axe, broadest in front. Rock dense, blackish grey. Only the front part completely polished, but marks of polish, or rather, long-time apparent wear all over the rugged surface.

L. 187 mm. B. 74 mm. Th. 35 mm.

Pl. 64, 2 (K 1387) Wa Kuan Tsui. Bought from Old man.

Long axe with thin and narrow neck. Rock dense, dark grey. Only the front part completely polished, but signs of wear all over the rugged surface.

L. 240 mm. B. 72 mm. Th. 48 mm.

Pl. 65,1 (K 1427) Wa Kuan Tsui. Bought from Old man.

Medium-sized axe of gracefully rounded shape. Grey rock. The whole axe polished. Plentiful lime incrustation.

L. 158 mm. Br. 61 mm. Th. 37 mm.

Pl. 65,2 (K 1431) Wa Kuan Tsui. Bought from Old man.

Axe like the preceding one but slightly smaller. Outline more angular with cross section tending to a rectangle. Rock crystalline, dark-grey. Only the front part polished. One side lime-incrusted.

L. 144 mm. Br. 55 mm. Th. 35 mm.

Pl. 65,3 (K 1419) Wa Kuan Tsui. Bought from Old man.

Long axe of rectangular cross-section. Grey crystalline rock (diorite?). Only the front part polished.

L. 205 mm. Br. 56 mm. Th. 46 mm.

Pl. 66,1 (K 1622) Pan Shan area, bought.

This is the first specimen of a group of axes which have this in common, that the rock, owing to its mineralogical composition, has been deeply corroded during the several thousands of years that have elapsed since they were deposited in the Pan Shan graves. All the four axes reproduced in plate 66 exhibit this deep corrosion, but only this one proves by a small area of perfect polish that they were quite different when they were deposited in the graves.

This axe is widest at the front and tapers regularly towards the neck. The rock is a banded greenstone which I know from other parts of the world to be liable to undergo deep selective corrosion. In this case the banding runs obliquely through the axe, as shown by the side view. Most probably only the fore part of the axe was polished. The broad side shown in the plate exhibits some narrow resistant ridges which have preserved the polish. The opposite broad side shows half the fore part with the polish intact.

L. 149 mm. Br. 51 mm. Th. 33 mm.

Pl. 66,2 (K 1619) Wa Kuan Tsui. »Skel. 3».

The corroded rest of a thin leaf-shaped axe. Two resistant ridges run through the broad sides of the axe.

L. 119 mm.

Pl. 66,3 (K 1392) Wa Kuan Tsui. Bought from Old man.

A medium-sized heavy axe of rounded rectangular cross-section. The edge still clearly discernible, but nothing is left of the original surface, which is replaced by a granulated area of resistant mineral grains. Neck thin.

L. 167 mm. Br. 56 mm. Th. 38 mm.

Pl. 66,4 (K 1401) Wa Kuan Tsui. Bought from Old man.

An object, possibly simply a flat pebble, perforated at one end.

L. 185 mm.

Pl. 67,1 (K 1433) Wa Kuan Tsui. Bought from Old man.

Heavy asymmetrical chisel of dense dark rock. Nearly the whole surface roughly polished.

L. 195 mm. Br. 41 mm. Th. 37 mm.

Pl. 67,2 (K 1386). Wa Kuan Tsui. Bought from Old man.

Very large, thin axe of dark, dense, schistose rock. Larger part only roughly worked. Front part polished.

L. 273 mm. Br. 94 mm. Th. 34 mm.

Pl. 67, 3 (K 1402) Wa Kuan Tsui. Bought from Old man.

Long, slender chisel perforated near the rear end. Dark, rather soft, schistose rock. Cross-section rectangular. Broad sides polished, narrow sides rough. Boring executed from both sides, roughly cylindrical.

L. 252 mm. Br. 36 mm. Th. 22 mm.

Pl. 68,1 (K 1421) Wa Kuan Tsui. Bought from Old man.

Thin adze with broken-off neck. Wide in front, with straight sides tapering towards the neck. Dark schistose rock. Longitudinal section slightly asymmetrical, one side straight, the other slightly concave. Polish rather rough. Slight lime incrustation.

L. 195 mm. Br. 95 mm. Th. 18 mm.

Pl. 68,2 (K 1844) Pan Shan. Bought.

Small thin adze of dark, schistose rock. Edge asymmetrical. One broad side flat, the other convexly bending to the edge. Front broad, the rounded straight sides tapering towards the narrow, square-cut edge.

L. 92 mm. Br. 52 mm. Th. 15 mm.

Pl. 68,3 (K 1896) Pan Shan, bought.

Small thin adze almost of the same breadth throughout its length. Slightly asymmetrical, one side nearly flat, the other convex, sloping to the one-sided edge. Dark grey crystalline rock.

L. 112 mm. Br. 56 mm. Th. 16 mm.

Pl. 68,4 (K 1423) Wa Kuan Tsui. Bought from Old man.

Strongly asymmetrical adze, very broad in front and tapering with a concave contour towards the narrow and thin neck. Dark crystalline rock.

L. 176 mm. Br. 76 mm. Th. 28 mm.

Pl. 69,1 (K 1834) Pan Shan.

Typical »Pen» like those from the Yang Shao sites of Honan. Dark rock, abundant lime incrustations. Narrow sides and neck square cut. Edge obliquely cut. Good polish.

L. 133 mm. Br. 50 mm. Th. 19 mm.

Pl. 69,3 (K 1429) Wa Kuan Tsui, bought from Old man.

Fore part of Pen. The fracture is old, to judge from the fact that it shows considerable wear. The polish is perfect and shows up beautifully the fluidal shades of the very hard rock from dark green to pale green and grey with spots of pale red.

Pl. 69,4 (K 1441) Wa Kuan Tsui. Bought from Old man.

Small, broad Pen of dark rock. Polished and much worn.

L. 43 mm. Br. 32 mm. Th. 6 mm.

Pl. 69,2 (K 1430) Wa Kuan Tsui. Bought from Old man.

Small symmetrical axe of dark crystalline rock. Neck rounded. The whole axe polished.

L. 124 mm. Br. 39 mm. Th. 20 mm.

Pl. 69,6 (K 1440) Wa Kuan Tsui. Bought from Old man.

Asymmetrical chisel of black dense rock. Perfect polish.

L. 78 mm. Br. 16 mm. Th. 15 mm.

Pl. 69,7 (K 1407) Wa Kuan Tsui. Bought from Old man.

Slender chisel with slightly asymmetrical edge. Rock greyish-green. One side heavily incrustated.

L. 113 mm. Br. 17 mm. Th. 11 mm.

Pl. 69,8 (K 1836) Lao Pan Shan. Bought.

Small square-cut axe of greenish black crystalline rock. Polished all over.

L. 67 mm. Br. 20 mm. Th. 14 mm.

Pl. 69,5 (K 1410) Wa Kuan Tsui. Bought from Old man.

A small stone object, apparently some kind of a workman's tool. Rock grey. Seen from the side it has the shape of the upper half of a headless human body with a neatly defined waist-line. The base is flat and smoothened by long wear. At the top there is a deep straight furrow, which is also smoothened by much wear.

Pl. 70,1 (K 1438) Wa Kuan Tsui. Bought from Old man.

Rectangular knife of grey sandstone. In the centre a biconical hole formed by hammering from both sides.

L. 100 mm. Br. 56 mm. Th. 9 mm.

Pl. 70,2 (K 1400) Wa Kuan Tsui. Bought from Old man.

Knife of grey, slaty rock. The outline is rounded rectangular. There are four irreg-

ularly bored holes. The specimen is singular in that there are sharp edges everywhere except the short side, with two holes to the right of the figure.

L. 86 mm. Br. 48 mm.

Pl. 70,3 (K 1399) Wa Kuan Tsui. Bought from Old man.

Knife of reddish sandstone. In centre a broadly biconical hole.

L. 64 mm. Br. 42 mm.

Pl. 70,4 (K 1895) Pan Shan. Bought.

Knife of dark slate. Outline rectangular. In centre a big hole formed by very regular cylindrical boring.

L. 88 mm. Br. 44 mm.

Pl. 70,5 (K 1835) Lao Pan Shan, bought.

Heavy knife of dark-greenish rock. Dorsal side thick, rounded. Central hole.

L. 83 mm. Br. 49 mm.

Pl. 70,6 (K 1621) Pan Shan area, bought.

Thin knife of grey slate. Outline like that of 70,1 but the edge rounded by wear.

L. 96 mm. Br. 50 mm.

Pl. 70,7 (K 1632) Wa Kuan Tsui. Bought. «Said to have been found by the hand of a skeleton.»

A slightly flattened globular white marble ball of perfect polish. Perforated by a cylindrical hole of 15 mm. diam. The making of the hole rather crude, indicating a primitive technique.

Greater diam. of the ball 63 mm. Smaller diam. 49 mm.

Pl. 70,8 (K 1437) Wa Kuan Tsui. Bought from Old man.

Broad «axe» of dense black, very hard rock. Back and sides square cut. Edge bluntly rounded. Hole bored from both sides but nearly cylindrical. Polish perfect.

L. 87 mm. Br. 66 mm. Th. 17 mm.

Semi-precious stones found in the Prehistoric sites of Northern China.)*

I take this opportunity to acknowledge my deep indebtedness to Professor G. Aminoff, Head of the Mineralogical Department of the Riksmuseum, who has undertaken a careful study of our semiprecious stones and enriched this report with numerous mineralogical data.

Huan-Yuan rings.

Of the type of large stone rings which the Chinese have termed Yuan and Huan we possess from the Prehistoric sites a number of rather varied specimens.

Frontispiece 1,2 (1446) Wa Kuan Tsui. Bought from old man.

Large Huan-Yuan ring of green jade with small dark spots. The cutting is somewhat irregular with a deep, straight fossa on one side just outside the central hole. This central

*) Some objects of jade and turquoise from other sites have been included in this chapter. They were actually excavated by us and consequently support the genuineness of the objects bought in the Pan Shan area.

opening is irregularly biconical. The outer circumference is fairly regularly cut, but the disc at the outer margin is in two places much thinner than the rest. High polish.

Outer diameter 149 mm. Diameter of central opening 63 mm. Normal thickness of disc 6 mm, thickness of attenuated parts 4 mm.

Frontispiece 1,1 (K 1447) Wa Kuan Tsui. Bought from Old man.

Huan-Yuan ring of green-to-white variegated jade with white specks and veins, some of the veins turning to rust brown. The cutting is somewhat irregular with a fossa on each side of the disc. The outer circumference is quite regular, the central opening very irregularly cut. Polish very perfect.

Outer diam. 135 mm. Diam. of central hole 64 mm. Thickness of disc 7 mm.

Pl. 71,10 (K 11026) Wa Kuan Tsui. Bought by Chuang April 24, 1924. »Said to have been found upon the chest of a skeleton without pots.»

Huan-Yuan ring of variegated jade, whitish to subordinate green, with whitish-opaque or rust-coloured coating. Cutting irregular. Polish not very high and obscured by the coating. Outer diam. 151 mm. Diam. of central hole 62 mm. Thickness of disc. 5—8 mm.

✓ Pl. 72,6 (K 11027) Kansu, Ti Tao Hsien, Che Chia Wan. Bought. Although there is no direct evidence, the crude work and the abundance of Prehistoric sites in this district may be taken as an indication that this is a Prehistoric specimen. Huan ring of variegated, green-to-white marble. Cutting very irregular and the specimen showing signs of much wear.

Outer diam. 174 mm. Diam. of central opening 57 mm. Thickness of disc 6 mm.

Pl. 72,2 (K 1448) Wa Kuan Tsui. Bought from Old man. A Yuan ring cut from a mineral aggregate consisting of calcite, talc and humite. Only a fragment of the ring came into our possession and it is strange that an attempt was ever made to cut a Yuan from such a heterogeneous and brittle substance.

The cutting is fairly good but the outer circumference is not regular. The cutting of the central hole is on one side divided into two concave facets, but the other side is evenly rounded. The ring is 32 mm. broad and 5 mm. thick.

Pl. 71,2 (K 1443) Wa Kuan Tsui. Bought from Old man.

Huan-Yuan ring of marble impregnated with serpentine. Colour variegated, white to green. Cutting slightly irregular.

Outer diam. 107 mm. Diam. of central opening 46 mm. Thickness of disc 4.5 mm.

Pl. 71,6 (K 1445) Wa Kuan Tsui. Bought from Old man.

A somewhat fragmentary Yuan ring. Rock jade-like but of inferior hardness and polish. Cutting of central opening conical. Colour greyish-green. Outer diam. 104 mm. Diam. of central opening one side 51 mm, other side 48 mm. Thickness 3—5 mm.

Pl. 71,4 (K 1417) Bought from Old man.

An irregular and rather heavy ring of jade-like stone. Light-grey with dark spots. Outer contour rounded quadratic, 67 mm wide. Central opening conical, one side 43 mm, other side 37 mm. Thickness of ring 18 mm.

✓ Pl. 72,5 (K 1444) Wa Kuan Tsui. Bought from Old man. Marble ring in three segments. Colour light-gray with a tinge of green. Cutting fairly well executed; however,

the combined rings do not form a circle, but each follows its own curve, leaving slight concavities at the joints. The six holes for tying the segments together are unilaterally strongly conical, 5 mm. wide on one side and only 2 mm. on the obverse. Outer diam. 128 mm. Diam of central opening 56 mm. Thickness of ring 4.5 mm.

Crescent-shaped pendant.

Pl. 72,1 (K 1450) Wa Kuan Tsui. Bought from Old man.

A crescent-shaped object, broken off at one end across the hole. The material is white marble. The horns are gently rounded and perforated with biconical holes, which are also well rounded. At an equal distance from the holes there is in the midst of the object a small pit marking the point of symmetry. One side is heavily incrustated. Length between the points of the horns 112 mm. Widest part 24 mm. broad. Thickness 8 mm.

Jade pieces.

Pl. 71,8 (K 1416) Wa Kuan Tsui. Bought from Old man.

A piece of beautiful green jade, cut and polished on one side and also with a slight polish on the obverse. For the rest, crude surfaces.

Pl. 71,7 (K 1451) Wa Kuan Tsui. Bought from Old man.

A thin plate of greyish-brown jade. It is cut on both sides to a uniform thickness, 2.5 mm, but never finished into its intended shape.

Pl. 71,5 (K 1832) Pan Shan. Bought. A piece of green jade, cut and polished on two sides; otherwise crude. The original pebble was discoloured black on the surface. This surface zone has been cut through, revealing the pale green of the interior. Shows signs of much wear.

Pl. 73,3 (K 1414) Wa Kuan Tsui. Bought from Old man.

A piece of green jade with a blackened zone, exactly like K 1832. Possibly they once formed part of the same pebble. The crude surfaces are quite similar in both specimens.

Two sides are cut, one flat, the other in three steps. High polish and much wear.

Jade axes.

Pl. 71,3 (K 1396). Wa Kuan Tsui. Bought from Old man.

A crude axe of dark variegated impure jade. Only the broad sides are partly polished, for the rest the specimen is very rough. The edge is slightly asymmetrical.

L. 117 mm. Br. 48 mm. Th. 20 mm.

Pl. 74: 1 (K 10650: 1). Shansi, Hsin Hsien, W 40 Li, Fan Ya Hsi. Bought.

Axe of yellowish-green jade. One side russet-coloured.

L. 126 mm. Br. 61 mm. Th. 19 mm.

Pl. 74: 2 (K 738) Yang Shao Tsun.

Fragment of axe of jade. Colour variegated, nearly black to green. Edge symmetrical. Narrow sides square-cut. Probably a fragment of our type »Broad thin perforated axes« (Pl. 17, 18).

Pen of jade and chalcedony.

Frontispiece 2,12 (K 1839) Lao Pan Shan. Bought.

This is a high Pen cut from the same type of pale green jade with black parts as K 1832 and K 1414, described above. Here the black forms a band across the middle of the Pen. The neck is broken away, so that the total length cannot be ascertained. The angular parts are everywhere smoothly rounded and the polish is perfect. On a small rough surface near the edge there are stains of lime incrustation.

L. 62 mm. Br. 11 mm. Th. 11 mm.

Frontispiece 2, 11 (K 1415) Wa Kuan Tsui. Bought from Old man.

Small thin Pen of chalcedony. Colours ranging from yellow white to nearly black. L. 43 mm. Br. 26 mm. Th. 6.5 mm.

Pl. 73,6 (K 1442) Wa Kuan Tsui. Bought from Old man. Broad and thin, small Pen of dull grey chalcedony.

L. 40 mm. Br. 36 mm. Th. 7 mm.

Frontispiece 1,3 (K 1449) Wa Kuan Tsui. Bought from Old man.

An exceedingly delicate and elegant ceremonial Pen, thin as a leaf and cut with perfect mastery in dark green translucent jade.

L. 99 mm. Br. 34 mm. Th. 2—3 mm.

Frontispiece 1,4 (K 1413) Wa Kuan Tsui. Bought from Old man.

Ceremonial chisel of yellowish green jade. The neck end is broken off and the fractured surface is covered with a thick coat of lime incrustation, proving that the specimen was already broken before being embedded in a grave. The edge is quite symmetrical. The workmanship is of the highest perfection. The neck is relatively thick, 6 mm. The fore part is thinner, 4 mm. This has been effected not by a uniform attenuation but by most skilful grinding, which has produced a highly artistic effect.

Pl. 71,9 (K 1610) Kansu, Ti Tao Hsien, Ssu Wa Shan. Bought.

A thin, irregular Pen, much broader in front than behind and with the edge obliquely cut. The material is grey jade turning into black. Polish good. In two places heavy lime incrustation.

L. 70 mm. Br. 33 mm. Th. 9.5 mm.

Pl. 73,5 (K 3232: 71) Kansu, Ti Tao Hsien, Ma Chia Yao. Found during our excavations.

A chisel of silk-grey jade. Rear part broken and spoiled during the excavation. Fore part much attenuated towards the tiny edge.

L. 105 mm. Br. 17 mm. Th. 16 mm.

Pl. 73,4 (K 2170: 47) Kansu, Kuei Te Hsien. Lo Han T'ang W. Found during excavations.

A chisel of the same silk-grey jade as K 3232: 71 but much smaller. Here too the rear part is broken away, but this specimen was fragmentary when embedded, as shown by the lime incrustation which partly covers the neck. The edge of this chisel is asymmetrical.

L. 54 mm. Br. 11 mm. Th. 9 mm.

Pl. 73,1 (K 575) Honan, Mien Chih Hsien, Yang Shao Tsun.
Small Pen of greenish grey jade. All the surfaces more or less incrustated. In shape it is like many of the small Yang Shao Pen cut from less valuable stones.
L. 46 mm. Br. 23 mm. Th. 10 mm.

Pl. 73,9 (K 547) Honan, Mien Chih Hsien, Yang Shao Tsun.
Pen of variegated, green to white jade. All surfaces heavily incrustated with lime.
L. 63 mm. Br. 21 mm. Th. 12 mm.

Pl. 73,7 (K 803) Honan, Mien Chih Hsien, Pu Chao Chai.
Pen of greenish-grey jade. The entire specimen heavily incrustated.

Pl. 73,8 (K 3002: 11) Honan, Mien Chih Hsien, Pu Chao Chai.
Small thin Pen of highly decomposed jade. Surface stained with a hematite-like red pigment.

Pl. 73,2 (K 1706) Presented by Rev. Beinhoff, Mien Chih Hsien, Honan. Said to have come from Sian in Shensi.
Pen of greenish-grey jade with surface partly russet-coloured.
L. 49 mm. Br. 19 mm. Th. 13 mm.

Pendants of amazonite.

Frontispiece 2,13 (K 1837) Lao Pan Shan. Bought.
Pendant of amazonite. The straight border exhibits a characteristic cavetto cutting which I have seen in many prehistoric stone objects, both in China and in Tonkin. The minutely mottled colour is vividly green. The boring is irregularly cylindrical with conical openings. The piece shows strong signs of wear. L. 43.5 mm.

Frontispiece 2,18 (K 2145: 2) Kansu, Hsi Ning Hsien, Chu Chia Chai. Below Skel. XXXVI.

Minute amazonite pendant with ramified boring. Boring irregularly conical.

Frontispiece 2, 15—17 (K 4104: 71, 68, 70). Kansu, Chen Fan Hsien. Sha Ching, E. 5 li.
Pendants of amazonite.

Frontispiece 2,14 (K 11031: 2), Pan Shan area. Bought in Ma's house. Crystal of amazonite. Heavily incrustated.

Turquoise pendants.

Frontispiece 2,1 (K 11031: 3) Pan Shan area. Bought in Ma's house.
Pendant consisting of a sheet of pale green turquoise attached to a bed of brownish black substance. Boring unilaterally conical, obverse diam. 3 mm, reverse diam. 5 mm.
Possibly the pendant was once broader, but the present margins are everywhere worked and rounded.

Frontispiece 2,4—5 (K 11031: 4, 5) Pan Shan area. Bought in Ma's house.
Turquoise pendants like the preceding one.

Frontispiece 2, 3, 7 (K 11029: 1, 2) Wa Kuan Tsui. Bought.
Turquoise pendants like the three preceding ones.

Frontispiece 2,6 (K 2131: 4) Kansu, Hsi Ning Hsien, Chu Chia Chai. Skel. XXXXI.

Turquoise pendant found by Dr. Davidson Black when cleaning the skeleton. The structure of this pendant is exactly like that of the pendants just described from the Pan Shan hills: a thin sheet of turquoise attached to a layer of dark shale. The only differences are that there are three holes and that the colour is bluish. (Pan Shan pendants all pale green.)

Frontispiece 2,2 (K 2139: 2), Kansu, Hsi Ning Hsien. Chu Chia Chai. Probably belonging to Skel. XXV.

Leaf-shaped turquoise pendant. Turquoise much paler than the preceding one but more bluish than the Pan Shan pendants. The thin turquoise film rests upon a bed of fine-grained pale brown sandstone.

In this heavy pendant the hole is biconical.

Frontispiece 2,8 (K 2255: 13) Kansu, T'ao Sha Hsien, Hui Tsui. Excavated.

Pendant or large bead of vividly green turquoise (?)

Frontispiece 2,9 (K 2385: 8) Kansu, Hsi Ning Hsien. Chia Yao. Bought.

Bead or pendant, perforated lengthways. Deep greenish blue turquoise with dark matrix.

Obsidian knife.

Pl. 71,1 (K 3218) Honan, Ho Yin Hsien, Chin Wang Chai. Pai 1922.

Triangular obsidian knife. Together with an arrow point this is the only obsidian object found by us in China. Owing to the rare material and also the unique and elegant shape, this object may have been looked upon by the Ho Yin Stone Age villagers as a treasured thing.

Beads.

✓ Pl. 72,3, 4 (K 11031: 1 a & b) Pan Shan area. Bought in Ma's house. Two strings of short, cylindrical marble beads, white or yellowish.

Frontispiece 2,10 (K 2145: 1) Kansu, Hsi Ning Hsien, Chu Chia Chai. Below Skel. XXXVI.

Wax-green steatite bead, 43 mm. long. Cylindrical boring. Surface dull.

The Pien Chia Kou grave.

The eventful story of how the Pien Chia Kou grave was discovered and excavated is told in the introductory section of this chapter on the Pan Shan hills.

Chuang discovered this grave by sounding with an iron probe in the stoneless loess soil. At an average depth of about half a metre below the grass-covered surface we unearthed the mouths of big funeral urns, and later on there was exposed an aggregate of not less than 12 urns encircling a skeleton resting upon its left side in »Hocker» position. After having examined the skeletal remains, Dr. Davidson Black told me that the body in the Pien Chia Kou grave was that of a man of about forty years of age.

When all the furniture and the skeleton were laid bare by very careful excavation, at the latest stage largely with the aid of brushes, the next problem was the exact mapping of this voluminous burial. For this purpose I laid out a base-net consisting of 15 matches fixed vertically in the soil so that they formed 8 squares, 50 cm. along each side, and covering the burial. From these match-points every detail was measured. (Fig. 25).

Two of the pots, 5 and 6, were found intact. No. 8 was broken, but in good shape. No. 1, 2 and 7 were big urns which under the pressure of the earth had telescoped down to half their height. All these urns were carefully bandaged to ensure their safe transport.

The big painted urns 3 and 4 were crushed and we could only collect and pack the fragments carefully.

Near the head there was an aggregate of coarse brown pottery. No. 9 was easily collected. The small pot No. 10 was found amongst the debris of No. 11. No. 12, close by the forehead, was entirely broken, but amongst the sherds were found bone fragments belonging, according to Dr. Dahr, to the skull of a deer.

Among these pottery debris were found two stone axes and two grind-stones.

Pl. 75,1 (K 2043) Heavy greenstone axe. Only the foremost part has a slight polish. Cross-section rounded rectangular.

L. 147 mm. Br. 54 mm. Th. 37 mm.

Pl. 75,2 (K 2044) Thin adze of dark hard quartzite schist.

L. 162 mm. Br. 46 mm. Th. 15 mm.

Pl. 75,3 (K 2041) Grind-stone of reddish sandstone. Through long wear hollowed from both sides until little remains in the centre.

L. 128 mm. Br. 90 mm. Original thickness 19 mm, in centre now remaining 7 mm.

Pl. 75,4 (K 2042) Grind-stone of reddish sandstone. Only one side extensively worked, the other only showing traces of grinding.

Pl. 76,1 (K 5474) Pot 1. Urn with broad bottom and wide low mouth. Painted in two colours, black and blackish-brown. But slight contrast between these colours. The main feature of the painted design is the four spirals. In the centre of these spirals there are double-contoured quadrangles with short cross-lines.¹⁾

¹⁾ As Palmgren in his monograph 'Kansu mortuary urns of the Pan Shan-Ma Chang groups' has given exhaustive technical descriptions of these urns, I here confine my task to giving brief characteristics of the main designs.

As an introductory remark to the following I here quote my description of the 'death pattern' in 'Archaeological research in Kansu' P 13—14:

In nearly all these varied designs there is one motif which recurs with striking persistence, namely a red band bordered by very narrow belts which are left unpainted, and outside these unpainted belts there are black bands from which saw-like dentations project towards the central red band. As this motif recurs in nearly all funeral urns of this period, but is never found in the household pottery of the same time, it appears reasonable to suggest that it is a kind of 'death pattern' specially connected with the funeral rites.

Pl. 76,2 (K 5795) Pot 2. Urn with broad bottom and moderately wide collar.

Painted in black and reddish brown, well contrasted colours. Main feature 8 gourd-shaped figures with a death-pattern frame and filled with trellis lines in two alternating patterns.

Pl. 76,3 (K 5475). Pot 3. Urn, spherical in the upper and conical in the lower half. Mouth low. Painting black and violet red, well contrasting colours. Main design four spirals, in the centre of which a diagonally placed black cross, in the interspaces of which black figures like arrow-points.

Pl. 76,4 (K 5041) Pot 4. Urn with relatively small bottom and collar of medium height.

Painting in black and thin violet-brown. The design is dominated by two horizontal black zones bordered by narrow death-pattern bands. The upper black zone carries a large number of rather irregularly placed, spared-out lens-shaped figures. The lower zone has in its centre a single file of powerful double-contoured spared-out figures, turned diagonally to the right. For their interpretation I refer to »Children of the Yellow Earth», the chapter on cowrie symbols. In this case it is possible that the double-contoured figures depict not the cowrie but rather the origin of this group of ideas: the woman's vulva.

Pl. 76,5 (K 5106) Pot 5. Small urn, coarsely painted in black and dark brown, which gives almost identical effects.

The main design consists of 6 rhombs framed by death-pattern bands.

Pl. 76,6 (K 5477) Pot 6. Urn of the large type. Painting coarse, and the two pigments, brownish black and violet brown, nearly confluent. Dominating design four death-pattern spirals. This urn was so completely covered with lime coating that we had to clean half of it with much-diluted hydrochloric acid.

Pl. 76,7 (K 5797) Pot 7. Big urn with distinct painting in black and violet. Dominant design four spirals, in the centre of which a diagonal cross with black dots at the ends and in the interspaces.

Pl. 76,8 (K 5476) Pot 8. Small urn with low wide mouth. Lugs at the collar. Distinctly contrasting painting in black and violet. Four fields of rhombic chess-board pattern divided by vertical death-pattern columns. Beneath the lugs narrow fields with zigzag lines like flying birds. These fields are framed in by death-pattern pillars exactly like those dividing the chessboard fields.

Pl. 77,4 (K 5790) Pot 9. Small pot of coarse ware. One rope-like lug.

Outer surface decorated with narrow superimposed dentated clay-bands, two horizontal on a level with the lower part of the lug, and beneath them a zigzag band.

Pl. 77,3 (K 5788) Pot 10. Small rough pot of coarse grey-brown ware. Lug like that of K 5790. Upper half of the outside filled with irregularly placed, superimposed, dentated clay bands.

Pl. 77,1 (K 5791) Pot 11. Pot of coarse dark-grey ware. Rough and badly broken. Decorated with two dentated zigzag bands just below the collar.

Pl. 77,2 (K 5796) Pot 12. This is the biggest of the four rough pots 9—12. Ware grey-brown with dark spots. Only decor: two dentated clay bands, one at the base of the collar, the other at the equator.

Correlation of the Pan Shan finds.

The Pan Shan finds form the richest group within all our prehistoric material. First of all the funeral urns of this group are in size, shape and the excellence of the painted design without parallel in Far Eastern prehistory. Moreover they rank in the first line of painted prehistoric pottery in the whole of Eurasia.

From the graves of these gorgeous mortuary urns these hills have also yielded the richest collection of prehistoric semi-precious stones so far found in China.

But in addition to the wealth of the finds, these hills also occupy a key position from a purely scientific point of view. It is only a matter of deep regret that most of the scientific evidence was destroyed by the planless digging. Under these circumstances it is of the utmost importance that the few scientifically recorded facts should be carefully coordinated.

From a topographical standpoint the Pan Shan sites are unique insofar that they form a burial ground situated far from and 400 metres above the villages which deposited their dead on these windswept hills. The question of where the village or the villages which used these burial grounds are located cannot be solved at present. We have learnt in the description of the Ma Chia Yao site that, to judge from the development of the painted pottery, this may have been one of the villages concerned. The rich household pottery of Ma Chia Yao seems to stand on a level of progress side by side with the Pan Shan burial pottery. Furthermore, there were found among the six thousand household sherds a few sherds of burial urns of Pan Shan type and a large part of an abortive urn of Pan Shan type. Thus, the relationship between Ma Chia Yao and Pan Shan seems to be complete, and it is quite probable that the Ma Chia Yao villagers carried their dead up to the Pan Shan hills for interment, a distance of 22 km as the crow flies.

However, we should never lose sight of the fact that the unravelling of the prehistory of the T'ao valley has only just begun. I feel sure that many sites still await discovery. One day, when the archaeology is better known, we may realize more fully the predominant position of the five Pan Shan necropolises.

The Pan Shan hills offer a unique feature in still another respect. The rich Pien Chia Kou grave is a typical »liegender Hocker«, as the Germans call it; the body was laid on its left side in a contracted position. Unfortunately we know next to nothing about the mode of interment in the other Pan Shan graves. Nevertheless, one observation deserves mention here. At Wa Kuan Tsui we noticed what seemed to be a burial, and which I named »Skel. 1«, see the plan fig. 26. However, the find was made within the Mohammedan diggings and I would not venture to present this find as a fully documented grave. Uncertain as it

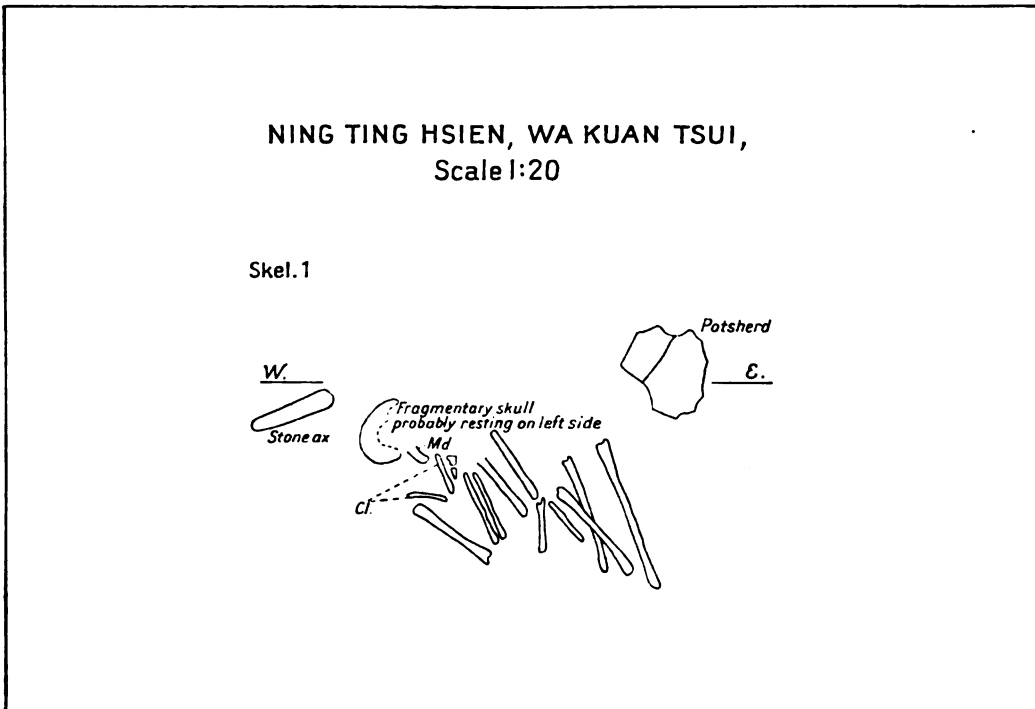


Fig. 26. Wa Kuan Tsui. «Skel. 1».

is, it deserved to be compared with the Pien Chia Kou grave. I specially noticed that the fragmentary skull probably rested upon its left side. The position of the mandible, the clavicles and the long bones is in entire agreement with the idea of Hocker burial. Above the skull there is a stone axe, also reminiscent of the Pien Chia Kou grave. In one respect the two burials are different: the Pien Chia Kou skull-cap turns to the south, that of Wa Kuan Tsui to WNW.

The stone implements bought from the old man living at Wa Kuan Tsui and in other small lots in the Pan Shan area belong to four main groups:

- 1: Rather heavy axes with rounded cross-section.
- 2: Thin adzes.
- 3: Small Pen.
- 4: Rectangular knives.

Many of these stone objects are more or less heavily incrustated, one side (bottom-side) bearing incrustations and the other, in some instances, root-marks.

The two stone axes found by us in the Pien Chia Kou grave represent groups 1 and 2 mentioned above. They both show patches of lime incrustation. It seems safe to say that these coincidences are apt to strengthen our belief in the authenticity of the objects obtained by purchase.

Together with the stone implements we also bought on the spot jade rings of the type Huan-Yuan, chisels of jade, pieces of jade, only slightly worked, pendants of turquoise and amazonite and short cylindrical marble beads.

Some of this jewelry, as for instance the jade rings and the slender chisels of jade, are incrustated; this applies especially to the exquisite object Frontispiece 1,4.

Jade chisels and jade Pen were excavated by us in the sites of Yang Shao Tsun and Pu Chao Chai in Honan and Lo Han T'ang and Ma Chia Yao in Kansu. These finds are very important as showing that jade is rare but widely spread in the Yang Shao sites of Northern China.

The authenticity of the turquoise and amazonite pendants bought at Pan Shan is corroborated by finds of exactly the same kind made during our excavations in the Chu Chia Chai cemetery and other sites.

String beads like those bought at Pan Shan were found in hundreds in the Chu Chia Chai graves.

I think it safe to say that the genuineness of the things bought at Pan Shan is greatly supported by these comparisons.

In addition to the eight painted pots found in the Pien Chia Kou grave, a very large number of pots have been described by Palmgren as urns of Pan Shan type. A number of them were bought in the Pan Shan area and may be assumed with tolerable certainty to have been unearthed there. The same is certainly the case with the majority of the urns of this type bought in Lanchow. In fact, the Pan Shan urns are on account of their size and quality easily recognized. But there is always the possibility that some divergent types may have been found in other sites unknown to us. We shall return to this question when discussing the urns reproduced in Pl. 92.

In the following pages I propose to describe briefly a number of bought urns reproduced in Pl. 78—92. They have all been described in great detail by Palmgren, and I shall confine my notes to such main features as are important for comparison with the urns of the Pien Chia Kou grave. I have not thought fit to include here such abberant shapes as Pl. I: 12, 14, XIV: 10 and XX: 1, 4, 5 in Palmgren's monograph. They are well presented by Palmgren and give rise to problems which will not be considered here. My reproduction of a small number of Pan Shan urns is only for the purpose of broadening the evidence offered by the Pien Chia Kou grave.

It should be added that three specimens of Pan Shan pottery, lids(?) with human heads, are reproduced in Pl. 185—186 and are described in the chapter on anthropomorphic representations.

Urn with design in concentric horizontal zones.

Pl. 78,1 (K 5001) Bought in the Pan Shan area.

Urn with low broad mouth. Painted in black and brownish-red. The design consists of 4 horizontal concentric, black dentated and smooth red death-pattern zones.

Pl. 79,2 (K 5009) Bought in the Pan Shan area.

Urn with low, very wide mouth. Decor in black and reddish-brown, like P 78,1 but with the black bands serrated along both edges.

Pl. 79,1 (K 5014) Bought in Lanchow. Urn with very wide mouth. Decor in black and reddish-brown: the general design is horizontal concentric lines with degenerate death patterns. On a level with the lugs there is inserted in this system of concentric bands a system of double spiral lines which form the dominating feature of the decor.

Pl. 80,1 (K 5019) Bought in Lanchow.

Urn with low, wide mouth.

Decor in brownish-black and brownish-violet, only slightly contrasting. The leading feature is three horizontal concentric death-pattern zones with broad interspaces with diagonal ladder-like figures.

Pl. 80,2 (K 5282) Bought in Lanchow.

Urn with moderately sized mouth. Decor in black and dark red. Concentric bands in degenerate death-pattern zones, into which is inserted a belt of rhombi with trellis filling.

Pl. 81,1 (K 5284) Bought in Lanchow.

Large pear-shaped urn of advanced type foreshadowing the Ma Chang type of urn. Decor in black and dark red. Design quite the same as Pl. 80,2, except that the trellis rhombi are replaced by double-contoured, trellis-filled circles.

Pl. 81,2 (K 5020) Bought in Lanchow.

Extreme Ma Chang-like pear-shaped urn.

Decor in black and reddish-violet: concentric zones in which we can trace degenerate death patterns with very minute black dents. Into this system are inserted two zones, each consisting of heavy black saw-bands.

Urns decorated with big spirals.

Pl. 82,2 (K 5159) Bought in the Pan Shan area.

A low rounded urn with wide low neck. Decor in black and violet: main feature four large death-pattern spirals with small centres, in the midst of which a round black dot.

Pl. 83 (K 5155) Bought in Pan Shan area.

Urn like Pl. 82,2 but collar slightly narrower and higher. Vessel broadly pear-shaped. Death-pattern spirals like Pl. 82,2 but no dots in centre.

Pl. 82,1 (K 5164) Bought in Pan Shan area.

Shape and spirals like Pl. 83, but collar narrow and high, carrying in the upper part a dense trellis decor.

Pl. 85,1 (K 5465) Bought in Pan Shan area.

An urn of rare beauty.

In general type like Pl. 82,1, but upper part of collar flaring and spiral centres large with chess-board filling.

Pl. 86,1 (K 5153) Bought in Kan Pa Ling, 45 li SE from Lanchow. Urn like Pl. 85,1 but collar lower and covered all over with trellis pattern. The large spiral centres filled with openwork trellis, in the interspaces of which there are curved black dots.

Pl. 86,2 (K 5141) Bought in Pan Shan area.

In painted design largely resembling Pl. 86,1 but the spiral centres have two kinds of fillings.

Pl. 84 (K 5146) Bought in the Pan Shan area.

A unique specimen. Pear-shaped with high collar.

The usual four big spirals are here replaced by six death-pattern spirals with narrow centres.

Beneath the ordinary painted zone a long dentated figure with a flying ribbon — possibly a potter's mark?

Urn with death-pattern festoons.

Pl. 85,2 (K 5756) Bought in Lanchow.

Unique urn with lugs placed diagonally, one in the usual position, the other at the base of the collar.

In the black colour, which strongly dominates, hanging death-pattern festoons.

Urns with death-pattern columns.

Pl. 87,1 (K 5095) Bought in Lanchow.

The painted mantle area is divided into four fields by four vertical death pattern columns, two beneath the lugs and two in the middle of the fields between them. The interspaces between columns are filled alternately with trellis and files of horizontal saw-bands.

Pl. 87,3 (K 5084) Bought in Lanchow.

Six vertical columns, two in each broad interspace between the lugs and two smaller ones beneath the lugs. The framed-in fields filled with chess-board pattern.

Pl. 88 (K5126) Bought in Kansu, Ning Ting Hsien.

Here the chess-board rhombi are very numerous and small. They are divided into six fields framed in by six vertical death-pattern columns placed very freely without regard to the lugs.

Pl. 87,2 (K 5097) Bought in Lanchow.

Four vertical death-pattern columns and between them broad fields filled with rhombi which give a chess-board effect by the line-filling being turned alternately to right and left.

Urns with dominating rhombus pattern.

Pl. 89,1 (K 5030) Bought in Pan Shan area.

Dominating design a single row of rhombi with death-pattern frames. Each rhombus containing four small ones with alternate linefillings.

Pl. 90,1 (K 5034) Bought in Pan Shan area.

Single file of rhombi in a death-pattern frame.

Beneath the painted mantle a black cross, perhaps the potter's mark?

Pl. 90,2 (K 5085) Bought in Lanchow.

Two files of rhombi, each filled with a cross and four dots.

P. 89,2 (K 5031) Bought in Pan Shan area.

This is a typical Pan Shan mortuary urn of advanced shape; only at the base of the collar, however, is there a faint trace left of the death pattern.

Three horizontal files of rhombs with simple frames and alternate line-fillings.

Urns with gourd design.

An interesting specimen of this group was reproduced and described in my paper »Archaeological Research in Kansu», Pl. VIII. Two more urns of this group are reproduced here:

Pl. 91,1 (K 5781) Bought in Lanchow.

Pl. 91,2 (K 5050) Bought in Pan Shan area.

Both these urns are advanced in shape and painted decor, the main feature of which is four nearly globular gourds — or bottle-shaped death-pattern contours with trellis filling.

More elongated gourd shapes are shown in Pl. 92. All these three urns, K 5070, K 5074 and 5077 were bought in Lanchow. They form a very homogeneous group, which we do not know with certainty from the Pan Shan hills. Possibly they came from a burial ground unknown to us. These three urns are reproduced here to show the wide range of the gourd shapes. K 5074 is one of our most exquisite mortuary urns.

* * *

Palmgren has undertaken a fruitful study of the stages of development of the Pan Shan urns. Within the decor families described above there are early and late representatives.

For instance, the groups decorated with horizontal concentric bands Pl. 78,1 and 2 and Pl. 79,2 include early types with only concentric death-pattern bands and shapes of early type. Pl. 79,1 is a more advanced specimen, as is also Pl. 80 with the death-pattern bands largely replaced by other designs, such as trellis rhombi and circles, which we know from Chu Chia Chai to be Late Yang Shao.

In Pl. 81,2 we see an urn in which the death pattern has degenerated into a rudiment, and which with its pear-shape stands on the threshold of the Ma Chang period.

In the group with big death-pattern spirals the same trend of development recurs. Pl. 82 and 83 give early specimens with strongly emphasized typical death pattern and small spiral centres. Pl. 85,2 and Pl. 86 are more advanced with big spiral centres.

In the group with rhombi, Pl. 89 and 90, we have early types like 90 and 89,1 with strong death pattern, but also an urn, 89,2, in which there is only a faint relic of the death pattern.

In some details given above I differ from Palmgren, but on the whole his interpretation is well founded. Palmgren distinguishes three stages, early, middle and late. As we know no real Lo Han T'ang (Early Yang Shao) features in the Pan Shan finds, I am inclined to put Palmgren's early and middle Pan Shan together as the Pan Shan equivalent to Middle Yang Shao, leaving his late Pan Shan as the well-founded equivalent to Late Yang Shao (Chu Chia Chai).

Turning to the urns of the Pien Chia Kou grave, Pl. 76, we note that all the main groups of painted Pan Shan pottery have their representatives in the Pien Chia Kou grave:

Horizontal concentric zones: 4.

Spirals: 1, 3, 6, 7.

Vertical columns and chess-board pattern: 8.

Rhombi: 5.

Gourds: 2.

Upon analysing this unit of eight contemporaneous urns to ascertain their stage of development we find that they offer unanimous testimony: there are no far advanced shapes, but the painted design has made some progress: there are broad filling zones between the death-pattern bands of 4, there are moderately advanced centres in the spirals and the gourd fillings are advanced. There is no feature that brings us into Late Yang Shao, but the Pien Chia Kou grave is of *mature Middle Yang Shao age*.

It will be noted that in the Pien Chia Kou grave there are four urns with large spirals but only one urn with concentric bands, one with chess-board pattern, one with rhombi and one with gourds. In approximately the same proportion there is in the large material of purchased urns a great majority of urns with spirals, then a moderate number of gourd-, rhomb-, chess-board, and concentric band urns. Finally, there are one or two specimens of several aberrant types, a pot with two mouths, another like a modern Chinese chamber-pot etc. To these rare types belong also the three human heads (Pl. 185—186), which may have served as lids to urns.

This fact, that »spirals» stand first and that »gourd», »rhombus», chess-board» and »concentric» urns reappear in the large material in approximately the same proportions as in the Pien Chia Kou grave seems to indicate that in the grave opened by the local Mohammedans the proportion of urn-types may have been approximately the same as in the Pien Chia Kou grave. Most probably there were poor graves with perhaps only one »spiral» urn and others with two or three pots of different types. No doubt, however, there were many with all the five types, possibly with one or other addition, eight to ten urns in all. Very likely this rule remained valid for a large part of the Middle Yang Shao time.

In «Children of the Yellow Earth» I have devoted considerable space to explaining the meaning of these symbols which speak to us from the urns of the Pan Shan graves. In chapter 18 «Fecundity rites, hunting magic and death cult» a brief survey was given of the mentality of imitative magic. From a large body of varied folklore and archaeological material we found as a consistent leading motif the imitative acts intended, by way of resemblance, to promote the survival of the species, whether the endeavour is directed towards making women pregnant, game numerous and easily captured or the powers of the seasons and the weather bestow a rich harvest.

These fertility rites, which primarily envisage the welfare of the living, were transferred by a simple process of thought to the dead member of the family who is about to set forth on the long and dark journey and who will require all the help which his relatives can give him.

✕ In the following chapter on «Aphrodite's Symbol» was assembled very varied evidence to show how a specific symbol, the cowrie shell — originally representing the female vulva — operates in manifold directions but with the consistent endeavour to dominate the world of the living and the dead.

✓ The chapter «Symbolism of the Pan Shan graves» takes as its point of departure the contemporaneity of the Pan Shan and the Ma Chia Yao sites and at the same time the contrast between the two. Ma Chia Yao was the home of the living people with a household pottery, freely decorated in black only. Pan Shan was the burial ground with a mortuary pottery painted in orthodox style in black and *red*, the last colour being apparently reserved only for the service of the dead. In this mortuary pottery the black and the red are combined into a pattern consisting of a central red band surrounded on either side by black fields with saw teeth, which just touch the central red band. This pattern recurs on every Pan Shan urn irrespective of the general design, which may be spirals, rhombi or gourds etc. Everywhere this red-black, serrated element forms part of the general design. It must form part of the funeral rite, and for this reason I named it the *death-pattern*.

The red pigment, the death pattern, the spirals, the chess-board pattern, the rhombi and the gourds, and finally also the snake upon the back of one of the pottery heads, are all interpreted in my chapter on symbolism as serving the dead. Each of them may have played a specific rôle in the funeral rites, which became complete only when most of the elements were present. Together they formed a many-toned orchestra, attuned to a resurrection symphony intended to make it easier for the departed to take the fateful step through the gates of death.

In addition to the 8 painted urns of the Pien Chia Kou grave there were also 4 smaller pots of dark grey-brown ware and coarse make. Their ornamentation with raised, serrated lines is not very characteristic and we do not know whether they had any symbolical significance. From another point of view their occurrence here offers great interest. We have always found it a perplexing feature of the

Yang Shao sites that there are so many types of ceramic wares side by side: elegant, large, thin-walled painted vessels of light grey to reddish-yellow ware, big vessels of brick-red ware, and coarse brownish-grey, often poorly made pots. To students who do not know the sites it might seem as if our material were in some way confused. But in the Pien Chia Kou grave, an absolutely undisturbed burial, we found eight elegant, painted urns and four poorly made brown pots side by side.

13.

SITES IN SHENSI AND SHANSI.

In these two provinces we had no opportunity of excavating systematically in prehistoric sites. But when travelling in these provinces for other purposes, we chanced to notice places where there are probably sites of considerable interest. In three places we undertook test diggings of some few days' duration. In the others only some sherds were rapidly gathered up as we walked over the ground. These small samples give indications of future possibilities. Furthermore they indicate geographical provinces within the vast area of the Yang Shao culture and therefore deserve a brief mention here.

Shensi, Hsi An, E 10 li, Shih Li P'u, NE ½ li.

In a loess cliff here was found a deposit of black ashy earth of the type well known from the Yang Shao sites of Honan. The deposit abounded in unpainted sherds. No sherd of painted pottery was seen here, and consequently no report is given here on the ceramics.

Artifacts from Shensi, Fu Ku Hsien, W 110 li, Wu Lan Kou.

In May 1921 my collector Chang stayed at Wu Lan Kou, Fu Ku Hsien of Shensi province. The main object of his visit was the collecting of Pliocene mammals, but his interest was also directed to archaeological material. From this district, Fu Ku Hsien, he brought home numerous stone axes, which will be described in another paper. At Wu Lan Kou he made a collection of pottery sherds, a couple of stone knife fragments and a stone chisel, which are described here. There is no report that they were all found in one culture deposit. Consequently the specimens have to be correlated on their own evidence.

Stone implements.

Pl. 93,1 (K 3180: 32) Small asymmetrical chisel of dark dense rock. L. 43 mm.

Pl. 93,2 (K 3180: 29) Half of a knife of pale reddish sandstone with green grains (glauconite?).

Pl. 93,3 (K 3180: 26) Half of another knife of the same kind of rock.

Pottery.

Pl. 93,12 (K 3180: 21) Marginal fragment of large vessel, the upper part of which was nearly cylindrical but slightly narrower at the mouth.

Ware grey, with big quartz grains. Thickness of wall in lower part 5—6 mm. Widening at the margin to 14 mm. This thickening of the wall is gradual, beginning some distance below the margin.

From a technical point of view this sherd offers much that is of interest. The entire vessel is hand-made. The interior and the horizontal zone of the margin are irregularly smoothened.

The outside is covered with a coarse diagonal mat-impression.

Below the mouth is a thickened belt, 40 mm. broad. This belt consists of three clay bands pasted to the marginal wall, beginning at the margin and proceeding downwards in such a way that the second clay band covers the lower part of the first one, and so on. The superimposing of one clay band upon another can be well observed in Pl. 93,12. In the same way, though much more distinctly, it can be seen how the undermost of these superimposed clay bands covers the wall of the vessel, the deep mat-furrows of which dive in underneath the superimposed clay-band.

But, and here follows the strange feature, these mat-furrows which very distinctly dive in underneath the clay bands can be traced running diagonally across these same clay bands, though largely obliterated by finger prints, which are the latest of the effects upon these superimposed clay bands.

As far as I am able to judge, this strange sequence of events can be interpreted only as follows: the vessel was built on the inside of a cover of matting, which left its impression upon the outside of the vessel. Then the matting was turned down from the marginal zone where the three clay bands were attached. The mat was again applied, apparently for the purpose of pressing the superimposed bands firmly to the wall of the vessel. Finally, after the mat-cover had been removed, the bands were exposed to finger-pressure, which largely obliterated the mat-impression upon the claybands.

Pl. 93,13 (K 3180: 16) Marginal fragment of another large vessel of much the same shape as the preceding one.

Ware pale brown. Thickness of wall below 5—7 mm., at the margin 12 mm.

This vessel is also handmade, covered on the outside with a mat-impression, which in this case runs diagonally from left to right.

The marginal zone is very broad, 7 cm. Its upper and by far the broader part is covered with a horizontal, coarse basket design. At the base there is a wavy superimposed band with regular finger-impressions.

Pl. 93,8 (K 3180: 10) Marginal fragment of a vessel, probably similar to K 6154 from Yang Shao Tsun, but relatively wider. Vessel hand-made with signs of rotating action in the smoothening of the collar.

Ware grey, thickness of wall 4—5 mm.

Outside of body covered with very distinct mat-impression running diagonally from right to left. It can clearly be seen that originally this pattern also covered the collar where it is now almost obliterated.

Pl. 93,11 (K 3180: 33) This is a fragment closely recalling Pl. 93,8. But here the ware is all brown, like the ware of the Honan »black pottery», and the inside and outside of our fragment has the dull black of the mat-impression specimens of the Honan »black pottery». There is no doubt that we have found on this site a specimen of this now famous ceramic group.

Pl. 93,4 (K 3180: 18) Marginal fragment resembling Pl. 93,8, but irregular in such a way as leads me to believe that it belonged to a Li-tripod.

Nearly in the centre of the sherd is a superimposed button. To the extreme right of this button the wall of the vessel is bent inwards in the same fashion as at the base of a Li-leg. Here too the mat-impression is irregular in the manner we know well from the junction between two Li-legs.

The collar, 30 mm. wide, is polished smooth. At the base of it there is a single row of inverted L-like impressions.

Pl. 93,5 (K 3180: 22).

Pl. 93,6 (K 3180: 19).

Pl. 93,7 (K 3180: 34) are sherds of vessels with basket design on the outside.

In all three cases the ware is grey with a brownish tinge. Thickness of the walls 6—10 mm.

The basket pattern of 93,5 is rhombic, that of 93,6 linear and that of 93,7 lozenge-shaped in outline.

Pl. 94,1 (K 3180: 20).

Pl. 94,3 (K 3180: 24) These are two small sherds, each with a lug divided into lobes by means of notches which are sharply cut deep into the lug. In both cases the ware is grey. The vessels are hand-made. Pl. 94,1 carries a mat-impression that is diagonally placed, and Pl. 94,3 a basket-impression that is very nearly horizontal.

Big basins with similar lugs are fairly common in the Yang Shao culture. For instance K 6398 from Yang Shao Tsun and K 5901: 25 from Pu Chao Chai.

Pl. 94,4 (K 3180: 17) Marginal sherd from a relatively small and slender vessel.

Ware grey, thickness of wall 3—4 mm. Marginal portion of wall slightly polished both inside and outside.

The striking feature is the upper attachment of an ear-shaped lug which must have been large in comparison with the small size of the vessel. This upper attachment is 3 cm. below the margin. Above it is decorated with 8 deeply incised lines and one minute, deeply impressed dot on each side of the lines.

Pl. 94,5 (K 3180: 25) Marginal fragment of an urn with a collar 33 mm. high. This collar is decorated with diagonal crossing lines, of which those running from the right were first incised.

Ware grey, thickness of wall 5 mm.

Pl. 94,2 a (K 3180: 9) Marginal fragment of an urn with very wide mouth (approx. 240 mm.).

Ware dark grey, rich in mica, thickness of wall only 2—3 mm., which is practically «eggshell» for such a large vessel. The collar is wheel made or at least smoothened on the inside and on the rim by very regular rotary action. On the outside of the collar there run six somewhat irregular lines incised in the soft clay.

The sherd Pl. 94,2 b (K 3180: 31) proved to fit the big marginal sherd as indicated by its place. This sherd is decorated with similar incised lines radiating from the collar on both sides of a triangular polished field.

Pl. 94,7 (K 3180: 23).

Pl. 94,8 (K 3180: 30) these two sherds seem to have this in common with Pl. 94,2 b,

that their decor consists of smooth triangular fields alternating with fields that are striated (Pl. 94,2 b) or pitted (Pl. 94,7 and 8).

These two sherds are rather thick-walled (7—8 mm.). The ware of Pl. 94,7 is fading from red to grey, that of Pl. 94,8 is grey throughout.

Pl. 94,6 (K 3180: 8) is a small fragment of a rather thick-walled (5—6 mm.) vessel of brick-red ware. It is decorated with belts of fine wavy concentric lines traced in the soft clay.

Pl. 93,10 (K 3180: 27) is a sherd of a vessel of brick-red ware strongly recalling that of the fine, smooth-surfaced vessels of the Honan Yang Shao sites.

This vessel (thickness of wall 3.5—4 mm.) is handmade. Inside very irregular, outside smoothened by carving and polishing.

Pl. 93,9 (K 3180: 28) A marginal fragment, pierced with a bi-conical hole.

Ware like that of Pl. 93,10, but in this case the entire outside and the upper part of inside of the collar covered with a deep violet-red slip which gives the surface a polished appearance.

Finally, we have to deal with a group of ceramics quite unique among the prehistoric cultures of N. China.

The ware may be very coarse, as is the case with Pl. 95,9 or very fine-grained and rather soft as Pl. 95,8, 10 and 11, or finally quite dense and hard, as is the case with the painted specimens Pl. 95,1—7. In all these sherds the ware is nearly white, varying from bone-yellow in Pl. 95,9 to cream-white in the painted sherds.

Pl. 95,8 and 9 (K 3180: 14 and K 3180: 12) are covered on the outside with mat-impression, coarse in the case of Pl. 95,9 and fine in Pl. 95,8. Pl. 95,9 is thick-walled, 5—6 mm., Pl. 95,8 thin-walled, 3 mm.

Pl. 95,10 and 11 (K 3180: 11 and K 3180: 15) have a smooth nearly polished outer surface. Pl. 95,11, which is a marginal piece, is almost as smooth on the inside.

Pl. 95,12 is a white stone fragment showing handwork on the upper edge.

Pl. 95,1—7 (K 3180: 1—7) are the painted sherds.

As already reported, the ware is dense and hard, cream-white in colour. Thickness of wall 3—6 mm.

Probably there was first applied a white slip, upon which the design was painted with a brownish-red pigment. The design is very simple, groups of parallel lines, the different groups turned in different directions or covering each other as in Pl. 95,7 to form a trellis pattern. In Pl. 95,5 the two systems join under a right angle. This is the only specimen that is painted also on the reverse side. Pl. 95,7 is a marginal piece with a concentric band painted on the inside of the rim itself. Pl. 95,4 is a long, slender lug.

All these sherds are hand-made and somewhat irregular in shape.

* * *

This small body of material invites discussion along several lines.

As we know nothing about the local conditions under which the collection was made, we may first ask: is it probable that all the specimens are derived from one culture; in other words, are they contemporaneous?

A conclusive answer can hardly be given to that question. The collection contains, besides the few and not very characteristic stone implements, numerous ceramics belonging to very different groups: grey pottery with mat and basket impressions, a very large eggshell urn, with singular decor of incised lines, grey pottery with pitted triangles, brick-red sherds with polished surface, white pottery with mat-impression, smooth white monochrome pottery and, finally, the unique cream-white pottery with linear designs in red-brown.

This varied aspect of the ceramics does not necessarily indicate that the collection is brought together from more than one site and from more than one cultural period. All the prehistoric cultures which we have studied have this in common, that widely different groups of pottery occur together, as for instance at Yang Shao Tsun, where we meet grey coarse pottery with mat and basket designs, exquisite «eggshell» of finest ware, huge vessels of brick-red pottery with pointed bottom, delicate brick-red bowls with polished surface and painting in black, red and white.

The Wu Lan Kou collection may be derived from one site or from several — we never can tell for certain. The most we can say is that all the elements *may* be of the same age.

What, then, is the age of these artifacts? Unfortunately the very characteristic painted sherds tell us very little, as both the ware and the simple design are unique. It seems as if the very fine ware had been exposed to hard fire, which might possibly indicate far advanced ceramic evolution.

We have here also unpainted white pottery. The only other case known to me of early white pottery is the remarkable white pottery of An Yang which is so closely associated with the bronze art of that early dynasty. There is hardly any reason to link up the Wu Lan Kou white pottery with that of An Yang.

There are in fact a number of features that link the Wu Lan Kou collection to our prehistoric cultures, specially the Yang Shao stage:

1. The perforated stone knives and the tiny stone chisel could very well have come from any one of the Yang Shao sites.
2. The same may well be said of the big grey sherds with mat and basket impression.
3. The small marginal sherd 93,4 almost certainly belongs to a Li tripod of the high, slender Yang Shao type.
4. The sherd 93,11 is a specimen of «black pottery» characterized by the peculiar brown ware and by the black surface on both the inside and the outside. It might well have come from Yang Shao Tsun or from Pu Chao Chai of Honan.

5. The brickred sherd 93,10 could well have come from Yang Shao Tsun. 93,9, the other brick-red sherd has a slip that is more reminiscent of the Ma Chang-stage of Kansu.

As a guess I would say that the Wu Lan Kou collection is probably prehistoric but slightly later than the Yang Shao stage.

* * *

Chang also brought us from different localities in Fu Ku Hsien various beautiful stone axes representing many of the types which characterize N. China. As they did not come from the same site as the pottery we have left them out of consideration here.

Shansi, Pao Te Hsien, NE 30 li, Nien Yen Tsun, SE 1 li.

In May 1922, when surveying the »dragon mines» of Pao Te Hsien in NW Shansi, my palaeontologist collaborator Dr. O. Zdansky made a find worth recording here. 30 li NE from the district city, near a place named Nien Yen Tsun, he saw prehistoric sherds on the ground and made a considerable collection of these exposed specimens. Though all the sherds which he collected in this way are small and much worn, a selection has been found worth presenting.

Pl. 96,1 (K 2383: 1) Sherd of plain bowl. Brick-red ware. Wall 6 mm. thick. Surface reddish grey. On the outside a broad (37 mm.) black band along the rim.

Pl. 96,3 (K 2383: 3) Marginal sherd like 1, but ware and surface deep brick-red. The black marginal band 46 mm.

Pl. 96,5 (K 2383: 5) Sherd like the preceding one. Black band 52 mm. broad.

Pl. 96,4 (K 2383: 4) Ware greyish red. Wall 5—6 mm. Marginal painted band 43 mm. broad; its colour is purplish red.

Pl. 96,9 (K 2383: 9) Sherd like the preceding one. Painted marginal band purple-brown, 46 mm. broad.

Pl. 96,7 (K 2383: 7)). Brick-red sherd, with a narrow, black band covering the rim and extending 4 mm. down the inside.

Pl. 96,10 (K 2383: 10) Upper view of the flaring rim of a basin. Ware brick-red. Both the upper part and the outside of rim painted black.

Pl. 96,6 (K 2383: 6) Marginal sherd of plain bowl. Ware brick-red. Wall 5 mm. Black design on outside.

Pl. 96,11 (K 2383: 11) Marginal sherd of plain bowl. Ware and surface greyish brick-red. On the outside is painted a linear design in reddish yellow.

Pl. 96,2 (K 2383: 2) Sherd of grey ware. Wall 3—4 mm. Decorated with vertical polished bands.

Pl. 96,8 (K 2383: 8) Brick-red ware. Marginal fragment of a broad vessel with narrow mouth and probably pointed bottom.

Shansi, Hun Yuan Hsien, Li Yü Tsun.

In 1926 my collector Chuang made a small collection in Hun Yuan Hsien, SW 15 li, Li Yü Tsun, SE 3 li, Liu Lang Fen.

In addition to various coarse pottery there are two fragments of 'black pottery' and one strongly polished grey sherd, resembling one from Shansi, Chao Hsien,

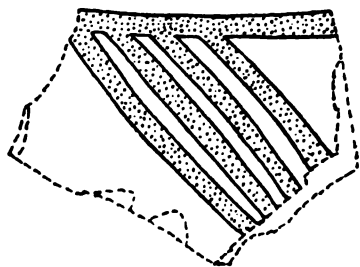


Fig. 27. Sherd K 2384: 7 Li Yü Tsun. $\frac{1}{1}$.



Fig. 28. Sherd K 2384: 1 Li Yü Tsun. $\frac{2}{3}$.

Tsao Chiao Tsun. Three small polished sherds recall different types of unpainted Yang Shao vessels.

Two sherds are painted. Fig. 27 (K 2384: 7) is grey, a marginal piece of a plain bowl. Fig. 28 (K 2384: 1) is reddish yellow. The painting was probably in black, but the pigment of both sherds is very much faded. These two sherds seem to indicate the Yang Shao age.

Shansi, Chao Hsien, Tsao Chiao Tsun.

In Chao Hsien, SE 40 li, Tsao Chiao Tsun, Chuang collected in 1926 some interesting material, of which the best specimens are described here.

Pl. 97,1 (K 3046: 134), 2 (K 3046: 137), 4 (K 3046: 135) Ware grey, slightly polished. Thickness of wall 5—8 mm.

The distinguishing feature of these sherds is alternating horizontal bands with polish (looking light coloured in the figures) and others, generally broader and unpolished.

Pl. 97,5 (K 3046: 136) Ware chocolate-brown in centre, grey near surface. Wall 3—4 mm.

A 20 mm. broad polished band bounded by incised lines. Below this polished band a row of impressed fossae.

Pl. 97,3 (K 3046: 132) Ware grey. Wall 5—9 mm.

In the lower part two broad polished bands, between which run narrow, vertical, polished lines.

On the top of the upper polished band groups of concentric polished semicircles forming bridge-like structures. Between these groups there is a button, divided by cross-lines into four parts.

Higher up, near what is probably the margin, two polished horizontal lines.

Pl. 97,6 (K 3046: 131) Small fragment of brick-red, thick-walled vessel, probably of large size. Outside decorated with a strongly projecting figure like the head of a bird with thick, strongly curved beak and very large eyes.

Pl. 97,7 (K 3046: 202) Ware brick-red. Vessel with pointed bottom. Mere traces of string pattern.

Pl. 97,8 (K 3046: 133) Ware chocolate-brown. Wall 4 mm. »Black pottery», black both inside and outside.

Pl. 98,1 (K 3046: 208) Ware brick-red. Wall 5 mm.

The rim is richly profiled in a manner well shown by the figure. The vessel was a high basin with bulging side-wall.

Pl. 98,2 (K 3046: 211) Ware pale brick-red. Wall 4—5 mm.

Marginal fragment of another high basin with bulging side-wall.

Pl. 98,6 (K 3046: 220) Brick-red ware.

Mouth of vessel with pointed bottom.

Pl. 98,3 (K 3046: 230) Brick-red ware. Small fragment of the mouth of a vessel like Pl. 98,6 but with different profile and wider mouth.

Pl. 98,4 (K 3046: 237) Brick-red ware. Another fragment of the mouth of a vessel with pointed bottom, but still wider than Pl. 98,3.

Pl. 98,7 (K 3046: 200) Brick-red ware. Bottom apex of vessel with pointed bottom.

Pl. 98,5 (K 3046: 166) Ware grey in centre, brick-red near surface.

Fragment of an urn decorated with two concentric bands of incised lines.

Pl. 99,1 (K 3046: 234). Ware brick-red with big mineral grains. Thickness of wall 8 mm.

Fragment of urn with low, wide mouth.

Diagonal coarse string pattern over the side wall. Near the mouth this pattern is obliterated by concentric striated furrows.

Pl. 99,2 (K 3046: 157) Ware brick-red. Wall 7 mm.

Fragment of urn or broad vessel with pointed bottom? Side-wall with diagonal string-impression. Round the collar concentric furrows.

Pl. 99,3 (K 3046: 222) Ware greyish brick-red. Wall 15 mm.

Marginal fragment of very large high basin with deep, rounded, concentric furrows on the outside.

Pl. 99,4 (K 3046: 154) Ware brick-red. Wall 6—7 mm.

Fragment of urn or broad vessel with pointed bottom? Outside covered with fine string-impression.

Pl. 99,5, 6 (K 3046: 18, grey ware and K 3046: 22, brick-red ware).

Marginal fragments of two smooth bowls with simple rim. Wall 4—7 mm. Vessels similar to the painted Yang Shao Tsun bowls, but unpainted.

Pl. 99,8 (K 3046: 164) Ware brick-red. Wall 9 mm. Crossing string-impressions. Possibly a very large vessel of same type as 99,2 and 4.

Pl. 99,7 (K 3046: 229). Brick-red ware.

Marginal sherd of high basin.

Pl. 99,9 (K 3046: 221) Very coarse, mottled ware.

Marginal sherd of urn with low, wide mouth.

In addition to the specimens described above and figured in Pl. 97—99 there were found some painted sherds of brick-red ware. They are very fragmentary, and the only distinct feature is a very broad black marginal band upon a plain bowl. One of these margins is 47 and another 50 mm. broad. These vessels are quite like the brick-red plain bowls with broad black marginal bands found at Pao Te Hsien, Nien Yen Tsun.

Similar brick-red bowls with broad black marginal bands were also found at Yang Shao Tsun.

The brick-red vessels with pointed bottom are a veritable «index fossil» of the Yang Shao age and they seem to be frequent here.

It is also interesting to note that two sherds of grey vessels decorated with polished lines like Pl. 97,1—5 were found at Yang Shao Tsun.

Shansi, Yang Chü Hsien.

In 1926 Chuang discovered in Yang Chü Hsien, not far north of Tai Yuan Fu, two sites, Yang Chü Chen and Pei T'ai Ti, which were studied by me some days before the visit there of Their Royal Highnesses the Crown Prince and Crown Princess of Sweden.

The sites are very rich in coarse unpainted pottery and deserve a much closer study. Here H. R. H. the Crown Princess found a unique tripod specimen Pl. 178,2.

No painted sherds were ever seen in these sites.

Shansi, Hsia Hsien, Hsi Yin Tsun.

In 1926 Dr. Li Chi, assisted by Mr. P. L. Yuan, studied a site which the former had discovered at the above-mentioned place. The material has been described by Mr. Liang Ssu Yung: New Stone Age pottery from the prehistoric site at Hsi-Yin Tsun, Shansi, China. Mem. American Anthropological Association. No 37. 1930.

This site is rich in painted pottery with designs very like those of Yang Shao Tsun.

THE SHA KUO T'UN CAVE DEPOSIT.

This was a small find, which however in several ways offered unique features.

The discovery was made in the summer of 1921, when the Ministry of Agriculture and Commerce in Peking ordered me to examine some coal mines in south-western Manchuria. Sha Kuo T'un is the terminus of a small branch-line of the Peking-Mukden railway, branching off from the main line some few kilometres

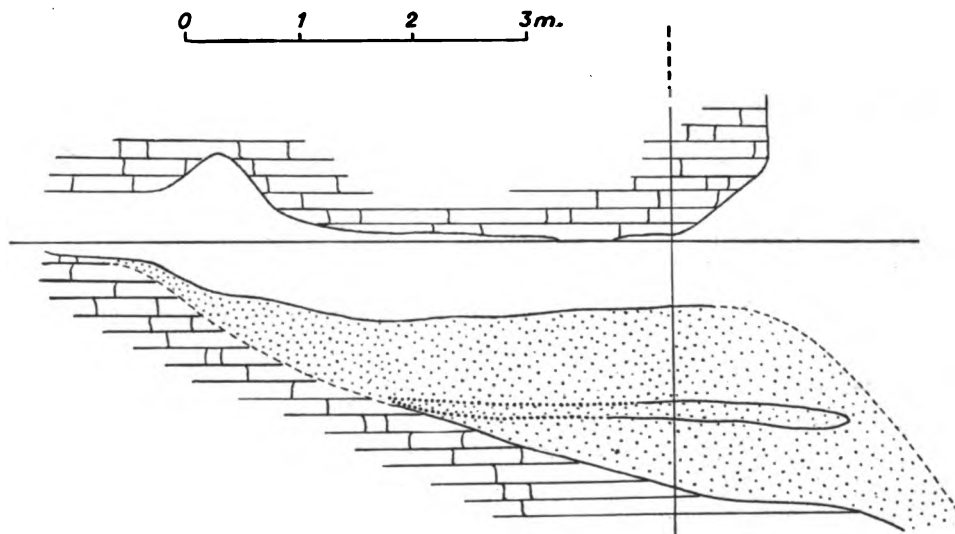


Fig. 29. Sha Kuo T'un cave. Longitudinal section.

SW from Chin Hsien. The outcrops of the coal series run past Sha Kuo T'un, and consequently we made this place our headquarters. To the south of Sha Kuo T'un the rocky ground consists of the Precambrian chert-banded limestone which here forms low hills. In one of these, slightly more than a kilometre SE of the railway station, we found a small cave which contained a deposit of notable interest.

The longitudinal section fig. 29 and the cross section fig. 30 show the dimensions and the stratigraphy of the cave. The dip of the limestone layers is sideways in relation to the cave, so that the layers seem horizontal in the longitudinal section but dipping in the cross section. It is easy to see in the sections how the dipping strata have influenced the shape of the cave.

The survey of the cave and the stratigraphy as it was revealed during the excavation were recorded simply by stretching a tape horizontally along the roof,

as shown by the horizontal line in the longitudinal section. This arrangement allowed me to take measurements from this base line at any time during the excavation.

The dimensions of the cave are very small. The length is 6 metres and the width 2.2—2.5 m. At the mouth the width is only 1.8 m. The depth of the cavity below the base line at the cross-section is 2.2 m.

As seen from the sections, the cave was to a very large extent filled with sediment, a finely powdered grey sand. This filling was not quite homogeneous. Deposit 2 was so filled with human-bones that we called it the Big Bone Bed, and

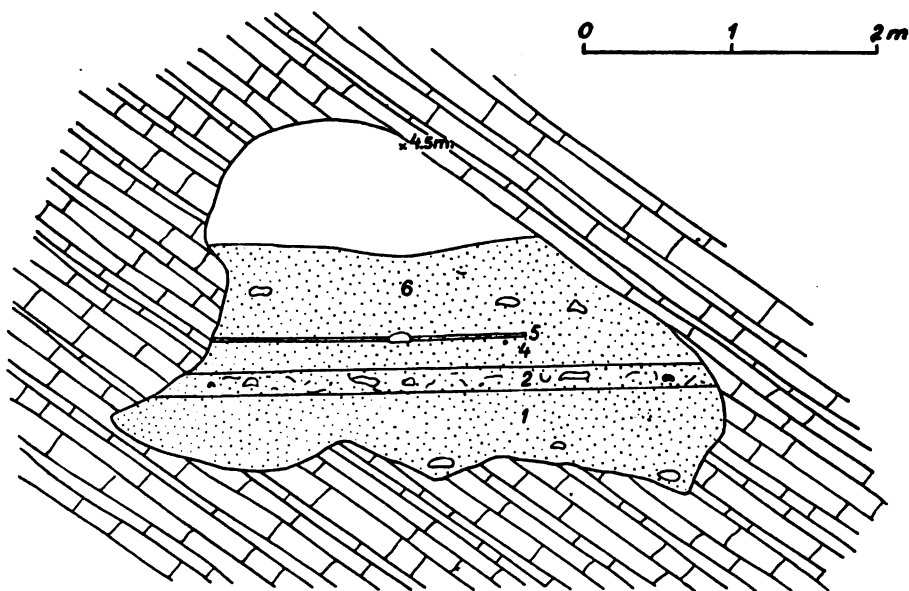


Fig. 30. Sha Kuo T'un cave. Cross-section.

the outer part of this deposit was so rich in charcoal that it was almost black. Moreover, some pieces of charcoal were noticed in the bottom layer (1), where also some few pottery sherds were found. By far the largest number of objects of stone, bone and shell, as well as ceramic fragments, were found in the Big Bone Bed.

The artifacts found can be classified as follows:

1. Some objects chipped from flintlike rock or from chalcedony, among them a scraper (a), a drill (c) and an arrow-head(b). (Fig. 31).
2. Four small polished stone axes. (Fig. 32).
3. A number of stone rings, some of them of the broad Yuan type. (Fig. 33), some very thin (Fig. 34). In addition, there are a number of exceedingly delicate rings cut from mussel-shells. (Fig. 35).
4. Some bone objects and a carved pig tusk.



Fig. 31. Scraper, arrow head and drill. $\frac{1}{1}$.



Fig. 32. Stone axe. $\frac{1}{1}$.



Fig. 33. Stone ring of Yuan type. $\frac{2}{3}$.

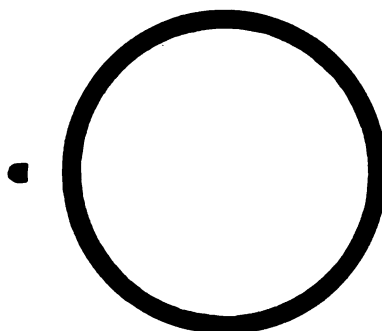


Fig. 34. Reconstruction of marble ring. $\frac{2}{3}$.



Fig. 35. Mussel shell ring. $\frac{2}{3}$.

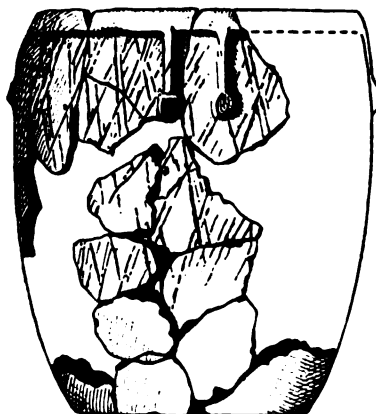


Fig. 36. Reconstruction of pottery bowl.

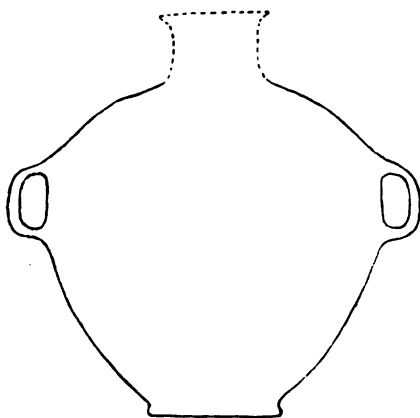
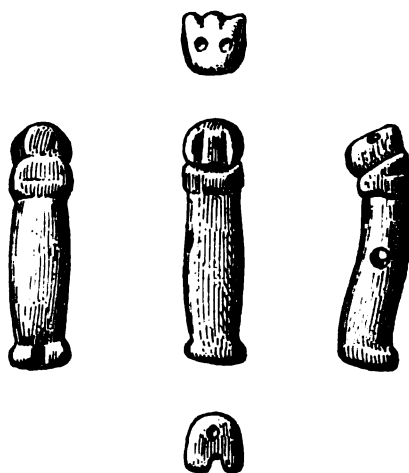


Fig. 37. Reconstruction of pottery urn.

Fig. 38. Marble figurine from Sha Kuo T'un cave. $\frac{1}{1}$.

5. Numerous pottery fragments, among them a few painted sherds, probably of the Yang Shao type. Among the fragments of vessels which were capable of reconstruction there are a bowl with pendulum-shaped decorations (Fig. 36) and a fairly large unpainted jar with narrow neck. The outline of this vessel (Fig. 37) strongly recalls the shape of the Pan Shan urns so profusely shown in Palmgren's monograph.

The painted sherds of Yang Shao type settle the age of the deposit, and the recurrence of the Pan Shan urn shape is a notable feature.

The most striking contents of the Big Bone Bed are the very numerous human bones of at least 45 individuals of both sexes and of all ages which were found in an extraordinarily fragmentary state. There are indications that the bones were broken when they were fresh with soft parts still attached to them. The considerations which have led me to believe that the cave was a kind of cannibalistic sanctuary are more fully expounded in «Children of the Yellow Earth» page 197—199. A full description of the site is given in my paper «The Sha Kuo T'un Cave deposit». *Palaeontologia Sinica*. Ser D. Vol. 1, Fasc. 1. Peking 1923.

15.

PAINTED POTTERY FROM THE DWELLING SITE OF CHU CHIA CHAI.

The village of Chu Chia Chai is situated on the northern side of the Hsi Ning Ho, 17 km. up the river above Hsi Ning city. Here the river plain is very broad. There is no trace of a Malan terrace in the vicinity, but the site is located on the

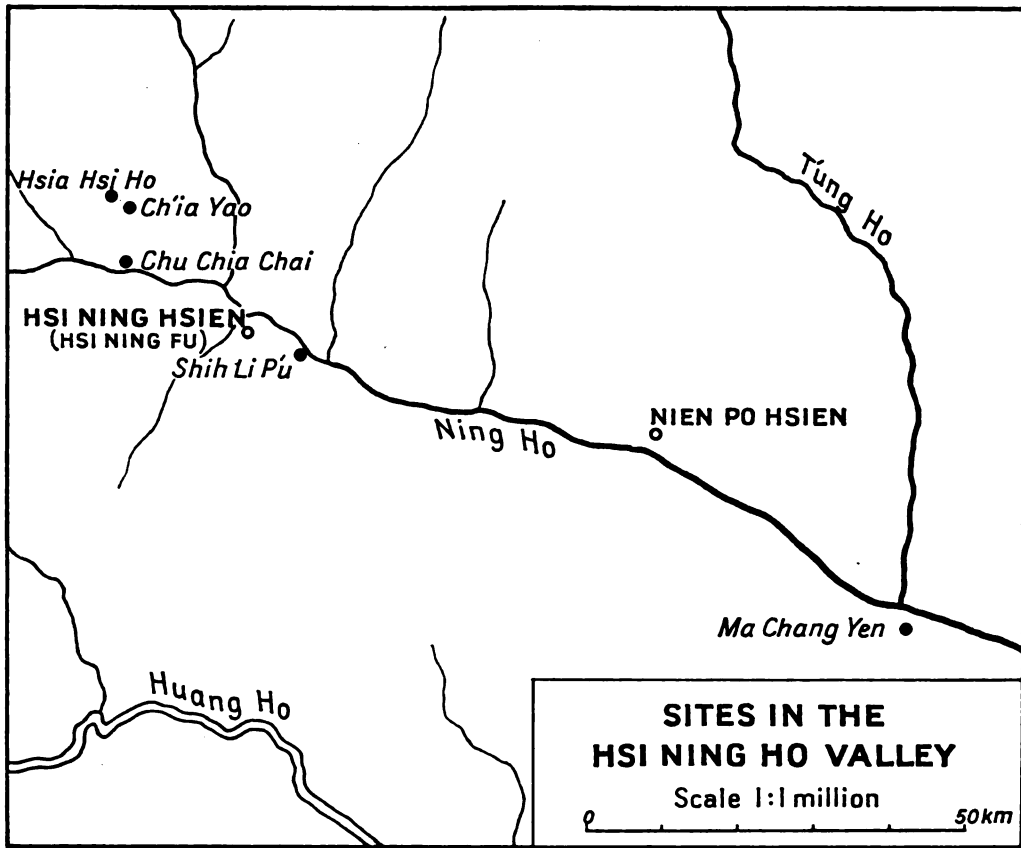


Fig. 39.

river plain at the base of a hill rising more than 210 m. above zero of our survey, which runs through the burial place in the southern half of the village. A small tributary to the Hsi Ning Ho flows in a southern direction with a winding course half a km. E of the village.

In the northern and larger part of the village, culture soil was noticed in many places, in road ravines and especially beneath the dwellings. In fact, the best places were just inside the village below some houses. In this deposit my men had already before my arrival made extensive collections of pottery and other artifacts of a type indicating Late Yang Shao age.

Very soon after my arrival I discovered the rich and interesting cemetery in the southernmost part of the site, and this subsequently absorbed all our attention. For this reason I must here limit my note on the dwelling-site to a statement of its extent in a triangular figure with a length in a N—S direction of 850 m. and a maximum width of 470 m., giving an area of 226,900 square metres. The rich

dwelling-site deposit is confined to the northern section of the area within the large northern part of the village of Chu Chia Chai. The southern part of the site close to the north of the smaller rectangular southern part of the village is entirely dominated by the cemetery.

The Chu Chia Chai cemetery became one of our main sources of knowledge about the burial customs of the Late Yang Shao time. True, in the splendour of the burial urns it is far surpassed by the Pan Shan burial grounds, but here at Chu Chia Chai we were able to excavate the graves in a most systematic way, and this procedure brought to light a mortuary furniture of extraordinary wealth, variety and interest. The only handicap — and a very serious one — is that some violent disturbance, probably an earthquake, has distorted the graves.

In this condensed review of the sites of N. China it has not been deemed expedient to select some picked specimens out of the voluminous and very varied material. Instead we have decided to present in full the painted pottery found in the dwelling-site, leaving the description of the main bulk of the furniture for the monograph on this site. This arrangement is the more convenient as the mortuary pottery of Pan Shan and Ma Chang is well known through Palmgren's monograph, whereas the dwelling-site pottery of late Yang Shao and Ma Chang are here described for the first time.

We shall see in the following pages how there are elements of Middle Yang Shao type (Pl. 100—101), Late Yang Shao (the main bulk, Pl. 102—105) and Ma Chang (a small, well-defined group, Pl. 106) in this material. It is to be regretted that we could not excavate stratigraphically in order to find out whether there were different layers or different deposits in parts of the dwelling-site area.

The location of the best part of the dwelling-site beneath the houses of the northern village made it necessary to ask my men to dig with the utmost caution wherever an outcrop near the house-grounds could be discreetly approached. It goes without saying that in these circumstances systematic excavation was out of the question.

Indirectly I have found evidence to prove that in this site, which evidently represents a period of rapid transition, elements of the past and of the future occurred together. This evidence is presented by the cemetery in the southern half of the Chu Chia Chai village. In very carefully registered excavations, where every measurement was taken by me personally, we unearthed 47 burials. In this rich material of mortuary urns we have specimens such as K 5911, K 5913 and K 6148, which might well be mistakenly supposed to have come from the Middle Yang Shao Pan Shan burial grounds. The main bulk of funeral urns from the Chu Chia Chai cemetery is typical Late Yang Shao, as is also the main bulk of sherds in the dwelling-site. And congruent with the small, well-defined group of dwelling-site sherds of the deep-red Ma Chang type we found in the midst of the Chu Chia Chai burials an urn typical of the deep red Ma Chang type.

We shall now proceed to describe the three above-mentioned elements in the dwelling-site pottery of Chu Chia Chai.

Sherds of Ma Chia Yao (Middle Yang Shao) type.
(all decorated in black only).

Pl. 100,1 (K 2055: 800) This is the only sherd of a bowl with a plain rim. The sherd was broken in two parts, which are photographed separately from the outside (1 a) and the inside (1 b). In the pale, straw-coloured ware, the thickness of wall (3.5 mm.), the black pigment and the design, this bowl is a typical Ma Chia Yao specimen.

Pl. 100,5 (K 2055: 711), Pl. 100,10 (K 2119: 82) and Pl. 101,8 (K 2055: 710) are collars of urns resembling in shape Pl. 57,5 but with different decor. These may possibly have been mortuary vessels.

Pl. 100,3 (K 2055: 788) was an urn probably resembling in shape Pl. 57, 3 a.

Pl. 100,4 (K 2120: 256) belonged to an urn with wide mouth or perhaps, more likely, a high bowl.

Pl. 101,1 (K 2055: 700), Pl. 101,2 (K 2055: 663) and Pl. 101,3 (K 2055: 820) belong to the side-walls of very large urns.

Pl. 100,7 (K 2055: 725), Pl. 100,9 (K 2120: 136), Pl. 101,5—7 are all urns related in design but different in shape.

Pl. 100,6 and Pl. 101, 4, 9, 10 are all from urns with characteristic zig-zag and trellis patterns.

Pl. 100,8 (K 2055: 327) and Pl. 101,2 (K 2120: 20), sherds of urns with very queer finger-like patterns, somewhat resembling the finger- and plant-like figures upon urns and bowls Pl. 183—185.

Sherds of Late Yang Shao type.

Fig. 40 gives an orientation within this group that is characterized by much more variety in ware and uses of slips and pigment than does the dwelling-site pottery of the Ma Chia Yao type.

Fig. c, d, i and l are probably fragments of funeral urns, as they show the «death pattern» more or less typically developed. c and l represent the typical death pattern with black saw-lines crossing into red or violet-red bands.

i and k are less typical, as black and violet-red are fading into each other. d is a special case. In the middle of the sherd there is a one-sided death pattern of black saw lines projecting into a band of violet-red. For the rest there are alternating white, red and black bands. It is probable that the white is a slip underlying the black and red.

f is like d in having white bands with red and black ones, but here there is no death pattern. h has the same design as f but not the white slip.

The four remaining sherds a, b, e, g speak for themselves. a, from a bowl with slightly flaring rim, has on the inside of the mouth a painting in both black and violet. These four sherds are far advanced and have nothing in common with Middle Yang Shao.

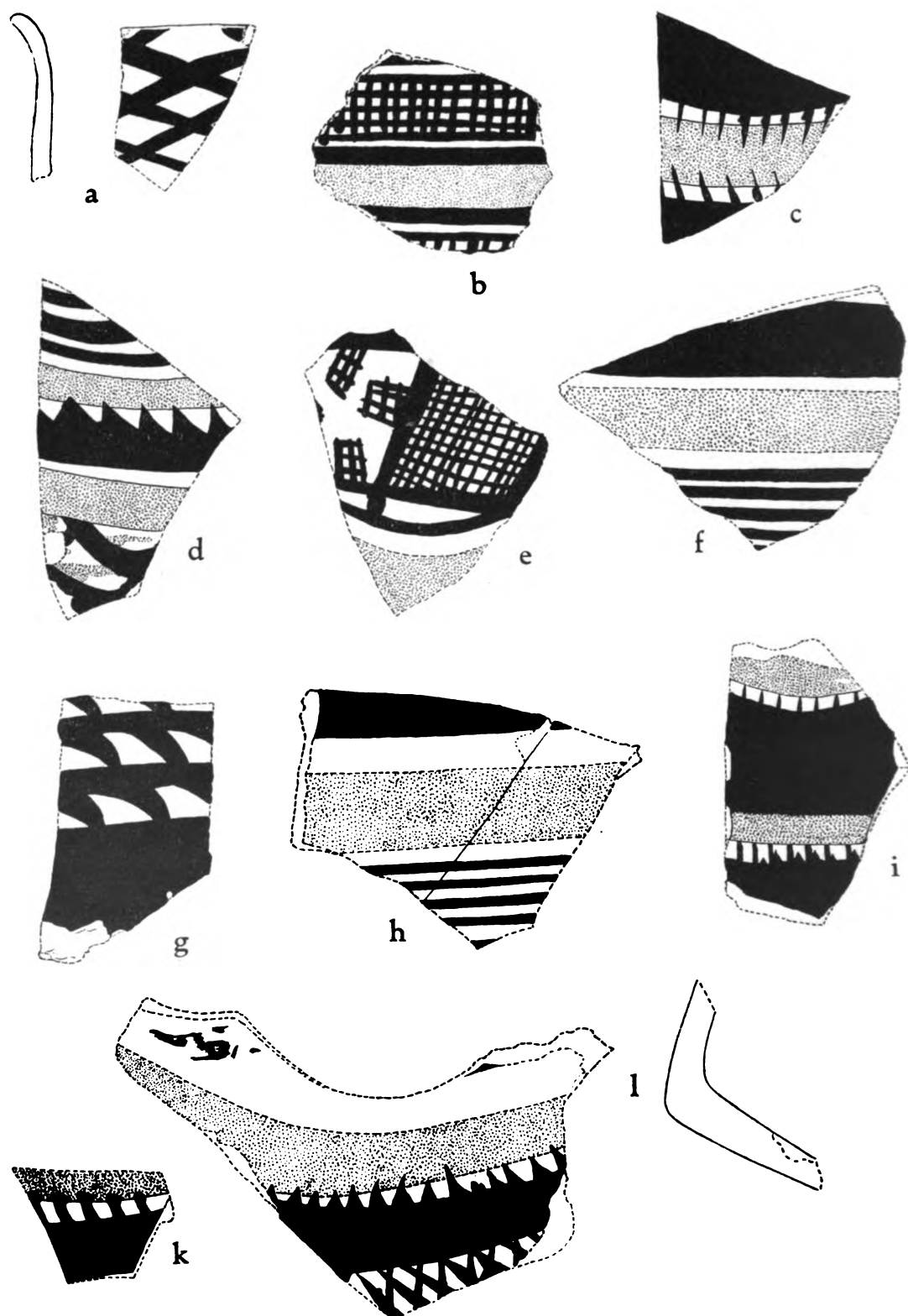


Fig. 40. Painted sherds from Chu Chia Chai. Dotted = red. $\frac{4}{8}$

Pl. 102 largely repeats the variety of designs shown in fig. 40. The ware is varying from brick-red to grey.

1 and 13 are lugs attached to the equatorial part of large urns, painted only in black. 5 is the lug of a collar belonging to a small urn with wide mouth. Painting done in brownish black. 6 and 7 are death-pattern sherds.

4, 8 and 10 have a white to yellow slip. 4 is painted only in black, 8 and 10 in black and brown. 14 is a coarse specimen with trellis pattern. 3 is a marginal fragment of a bowl with flaring rim and a design richly represented in Pl. 103.

Pl. 103. Ware varied from grey to brick-red. All sherds belong to urns except 15, 16 and 19, which is doubtful. The painting is done only in black, except g with a full death pattern and 15, 16 and 20 which we describe below.

15 and 16 are high bowls with flaring rim. The painting is in alternating black and red brown (the triangle in 16 is red). Upon the rim of 15 are garlands in black and brown. Outside not painted.

20 is a remarkable pattern. The larger standing triangles violet, the smaller hanging triangles black.

5 is a meander design unknown in Middle Yang Shao but common in Ma Chang.

Pl. 104,2 (K 2120: 126) is a large sherd with death pattern in black and violet red.

Pl. 104,3 (K 2055: 47) Fragment of small urn with equatorial lugs and high narrow neck. Over a cream-coloured slip is painted a design in black with a reddish-brown equatorial band.

Pl. 104,1 (K 2055: 49) High bowl with narrow rim and two indentated horizontal lugs. Very crude painting done only in black.

Pl. 104,5 (K 2055: 819) Large bowl of same type as Pl. 104,1. Painting done only in black.

Pl. 104,4 (K 5221) This fine specimen was bought in Lanchow. There is very little probability that it came from Chu Chia Chai, but it certainly belongs to the group represented by Pl. 102,3, Pl. 103,15 & 16 and Pl. 104,1 & 5.

Ware brick-red. Inside smooth painted, outside unpainted.

High bowl with narrow rim and two lugs. Height 130 mm. Diameter 212 mm. Rim with zig-zag pattern. Inside of collar with trellis design. Bottom and sides with a triangle-spiral pattern in black and red.

Pl. 105. This is a very varied material, representing in fact four different types:

Pl. 105,1 (K 2055: 562) The figure shows the inside of a marginal sherd with a narrow lug on the outside. Both outside and inside covered with a violet slip, upon which is painted on the inside only a simple design with a pigment that looks like grey mud.

Pl. 105,9 (K 2055: 574) Sherd of a very large, thick-walled (10 mm) vessel. Ware very coarse. Outside with grey slip upon which an X-design is very carelessly drawn in violet pigment. Inside with light violet slip.

To the same group belongs Pl. 102,12 (K 2055: 572). Ware very coarse. Wall 7 mm. Both inside and outside covered with a light violet slip, upon which there is painting on the outside in deep violet.

Pl. 105,8 (K 2055: 549) and Pl. 105,13 (K 2055: 566) are both marginal fragments of small urns. Ware light brick-red. Outside with cream-coloured slip, inside with slip of light violet. Outside painted in zig-zag design in deep violet, which also covers the whole collar both inside and outside.

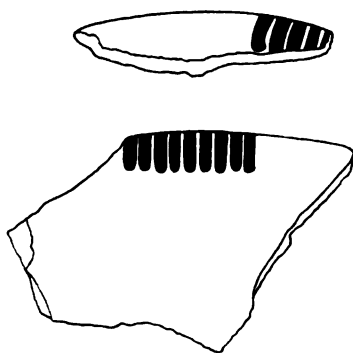


Fig. 41. Black decor on inside of collar. Pl. 106, 1 & 4. $\frac{1}{4}$.



Fig. 42. Reconstruction of sherds K 2055: 511, 513, 501, 502. Pl. 106, 1—4. $\frac{1}{4}$.

Pl. 105,2—7, 10, 11—12 all have in common the deep violet red outside covered with black painting. 2 is the neck of an urn with indication of a meander-like design.

4 and 10 are also marginal sherds. All these sherds are of the red Ma Chang type. So are also Pl. 102,2, 9 & 11 with the same deep violet slip and painting done in black.

Pl. 106. All the material on this plate, though it comes from the Chu Chia Chai dwelling site, in type gives the impression of red Ma Chang throughout.

Two of these fragments 2 & 3 (K 2055: 513, 511) certainly belong to one vessel, and it is quite likely that 1 is a lug and 4 part of the collar of the same vessel. In its warm red slip and unique design in black it is one of our most striking specimens, distinguished by the pleasingly strong contrast between the powerful black design and the bright red background.

The painted decoration of the side-wall is executed in two zones. The lower one is a meanderlike design with empty rectangles framed in by three congruent angle-lines. Immediately on top of this lower zone follows the upper, consisting of two rows of line-

filled triangles leaving between every group of four triangles, irregular, more or less rhombic, empty spaces.

The outside decor of the handle (1) and the fragment of the collar (4) is shown on the plate. Their inside is illustrated in fig. 41. It is the similarity of this simple linear design that strengthened my belief that they belong to one vessel. (Fig. 42).

Pl. 106,9 (K 2055: 462) is a fragment of a small vessel with the same decor as the preceding one. Both the meander-like squares and the line-filled triangles are there.

Pl. 106,5 (K 2120: 310) is another sherd of the same type, and possibly to the same vessel belongs 106,13 (K 2055: 461), showing also the four vertical lines which rise in one group to the top of the collar (compare 106,4). Handles such as 106,10 and 106,11 probably belong to the same type of vessels (it should be noted that 106,9 and 106,13 show the bases of such handles.)

Pl. 106,14 (K 2120: 298) is the bottom of a closely allied vessel, and I think it probable that in all these specimens we are dealing with one and the same type of urn, of which 106,1—4 is the large and unparalleled masterpiece.

Pl. 106,6—8 (K 2120: 307, K 2055: 500, K 2055: 470) are sherds of plates or bowls. 106,8 has a narrow lug.

16.

THE MA CHANG STAGE.

In chapter 12 describing »Finds of the Pan Shan hills» I have outlined the events in Lanchow in the early spring of 1924 when hundreds of prehistoric painted urns were offered to me for sale. I have also told how my collector Chuang very successfully located the sites in the T'ao Ho valley and finally brought me to the Pan Shan hills.

Shortly afterwards there followed the discovery of the rich Ma Chia Yao site through my collector Chin. As far as the Yang Shao stage is concerned 1924 was a good season.

This was not entirely the case with the Ma Chang finds. Side by side with the rich influx of Pan Shan urns there was an almost equal supply of another type of big urns related to the Pan Shan urns but apparently in a more advanced stage (Ma Chang).

During the early part of 1924 we never saw any indication of a Ma Chang burial. When in the second part of July I went north to the Chen Fan oasis, I sent Chuang up the Hsi Ning Ho valley in search of the missing link. He returned in the autumn with a lot of interesting things, and he even reported that he had excavated two Ma Chang graves in Nien Po Hsien at a place named Ma

Chang Yen, located just S. of the Hsi Ning Ho, where it receives the tributary Ta T'ung Ho.

From these supposed graves he brought home four vessels of Ma Chang type Pl. 111 (K 5617), Pl. 113 (K 6124), Pl. 116 (K 5693) and Pl. 118,4 (K 5616). Chuang's report did not convince me that he had found indisputable graves. Nevertheless I have used the name Ma Chang to give a denomination to this stage. I recommend to future explorers the Hsi Ning Ho area as a promising field for Ma Chang finds. It seems as if with Ma Chang the centre of the population shifted from the T'ao Ho valley northwestwards.

Apart from the Nien Po Hsien area, which I never had time to visit, we found a small dwelling site of Ma Chang age at Shih Li P'u, ten li before Hsi Ning (Pl. 107). The Late Yang Shao site at Chu Chia Chai (chapter 15) may have survived into Ma Chang time (Pl. 106). Small finds of Ma Chang type were made at Ch'ia Yao and Hsia Hsi Ho (Pl. 108).

The few sherds of painted pottery found at Kokonor were described in »Children of the Yellow Earth» chapter 13, as Yang Shao, but they would appear to be Ma Chang.

Far in the north, in Yung Chang Hsien, I found outside the wall of San Chio Cheng indications of a Ma Chang site (fig. 47). Finally, in the very distant NW, in the Yümen corridor the Hedin expedition found sherds of Ma Chang type.

Finds at Shih Li P'u.

Our first find of painted pottery in Kansu was made at Shih Li P'u, a hamlet 10 li on the way to Hsi Ning. The small site is located close to the road and east of the houses, at a small brook in its course down to the nearby Hsi Ning Ho crossing the road. Here we collected a considerable body of material including many large, thick-walled, fragmentary vessels. Only a selection of painted sherds is described here.

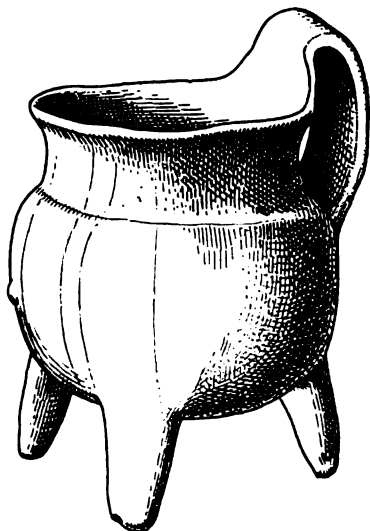


Fig. 43. Ting tripod. Shih Li P'u. $\frac{1}{2}$.

Pl. 107,1 (K 2158: 9) Fragment of a Li tripod with bulbous legs. Brick-red ware. This type of Li became more common in the following Hsin Tien and Ssu Wa stages (Pl. 173—174).

Pl. 107,2 (K 2158: 2) Fragment of a Ting tripod with one lug rising high above the margin. Ware brick-red. The entire surface daubed over with mud changing in colour from light grey to brick-red.

Text-figure 43 (K 6312) Complete specimen of same type of Ting as Pl. 107,2. Same kind of high lug and opposite to it in the middle of the side-wall a small button. The whole of the inside and outside

coated with light-grey mud, upon which the inside of the collar is painted brownish red.

Height to margin 121 mm. Height to top of lug 148 mm. Diam. 103 mm.

Pl. 107,3 (K 2158: 18) Top of handle of a plate, something like Pl. 181,2. See also Pl. 108,10. Brick-red ware. Upper side, coating light violet, under side yellowish grey. Two black lines along the handle.

Pl. 107,4 (K 2158: 17) Top of handle like the preceding one. Underside of base pierced with a horizontal hole.

Pl. 107,8 (K 2158: 14) Marginal fragment of a plate, probably like Pl. 107,3. Whole upper side and marginal part of under side covered with a thick violet brown slip. Margin painted in black line-filled rectangles.

Pl. 108,10 (K 2166: 1) Marginal fragment of plate like the preceding one. Ware brick-red. Wall 10 mm. thick. Black painting on thick brown slip.

Pl. 107,9 (K 2158: 23) Marginal fragment of high bowl. Ware brick-red with greenish spots. Wall 5 mm. thick. Black paint upon thick red slip.

Pl. 108,6 (K 2158: 36) Sherd, probably of a small urn. Ware brick-red. Wall 4 mm. Black paint upon red slip.

Pl. 108,4 (K 2158: 33) Sidewall fragment of urn. Ware coarse and porous, brick-red. Wall 3—5 mm. thick. Inside and outside slip violet in widely differing shades. Inside rough, outside polished.

Pl. 107,7 (K 2158: 34) Fragment of urn. Ware brick-red. Wall 2,5—4 mm. Slips like preceding specimen but outside brown. Black paint in concave triangles (comp. Pl. 109,4—5).

Pl. 107,6 (K 2162: 3) Fragment of large urn. Wall 8 mm. thick.

Pl. 107,5 (K 2164: 7) Marginal fragment of urn.

Pl. 108,9 (K 2159: 3) Fragment of collar to very large urn. Brick-red ware, coarse and porous. Wall 9—14 mm. Outside slip violet-red with black paint. Inside coating and slip.

Hsia Hsi Ho and Ch'ia Yao.

From these places in Hsi Ning Hsien, N of Chu Chia Chai we gathered, during the work with sites of Ch'ia Yao age some sherds of Ma Chang age. The material from Hsia Hsi Ho was found near the stream. The Ch'ia Yao sherd came from N of the village.

Pl. 108,1 (K 2165: 25) Hsia Hsi Ho. Sherd of urn. Ware grey. Wall 5—7 mm. Upon reddish slip black paint in interesting design of crowned line-filled triangles and meanderlike figures (comp. Pl. 106,3).

Pl. 108,2 (K 2165: 12) Hsia Hsi Ho. Fragment of small urn with base of lug. Ware brick-red with grey centre. Meander-like design upon pale greyish-red surface.

Pl. 108,3 (K 2165: 20) Hsia Hsi Ho. Fragment of urn. Ware brick-red.

Pl. 108,5 (K 2165: 8) Hsia Hsi Ho. Sherd in every way like Pl. 108,2.

Pl. 108,8 (K 2165: 21) Hsia Hsi Ho. Sherd of urn with basal part of lug. In contrast to previous specimens, the colour of which is greyish, this sherd is painted in sharp black upon a brilliant carmine-red slip.

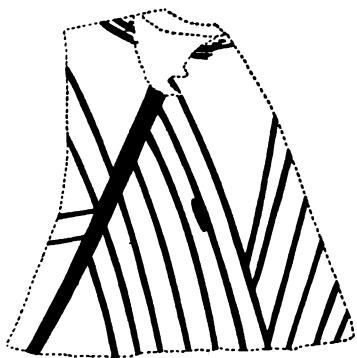


Fig. 44. Sherd from Hsiao Shih Chia. $\frac{1}{2}$.

Pl. 108,7 (K 2428) N. of Ch'ia Yao. Colour greyish-brown, reminiscent of most Hsia Hsi Ho specimens. Main design twin-meander.

Sherd from Yü Chung Hsien, Hsiao Shih Chia.

Fig. 44 (K 2426: 1). Sherd of large urn. Brick-red coarse ware. Wall 6—8 mm. Black painting upon thick violet-red slip.

Bought household vessels.

As the Shih Li P'u finds were systematically excavated from a dwelling site containing «ashy earth» and bone refuse, they are undoubtedly household pottery. Two of these sherds, Pl. 107,6 & 7, very closely resemble three urns, Pl. 109,2,4—5, which we bought in Kansu and which probably belong to the household group.

Pl. 109,2 (K 5239) Bought in Lanchow.

Small urn with low body gradually passing into the very high neck. Ware brick-red. Wall 4 mm.

Bases of very high handles occupying most of the vessel's height. Thick slip of violet brownish-red. Decorative painting in black: spiral triangles and other freely drawn figures.

Height 151 mm. Diam. 104 mm. Height of handles 120 mm.

Pl. 109,4 (K 5952) Bought in Lanchow.

Urn with brown slip and décor of spiral triangles running clockwise.

Height 208 mm. Diam. 213 mm.

Pl. 109,5 (K 5948) Bought in Kansu, Chin Hsien, Ti Chiao Tze Kou, Tsun Chia Kou.

In shape and decor like the preceding urn, but the slip is redder. These three urns Pl. 109,2, 4—5, and also the sherd Pl. 108,6, show at the base of the neck z-shaped figures like the *lightning symbols* described by Karlgren from the Hsin Tien graves of Kansu (BMFEA Vol. 2, 1930, Pl. V). But these figures on the Ma Chang household urns are rather freely drawn.



Fig. 45. Inside decor of Pl. 109,1. $\frac{1}{3}$.

Pl. 109,1 (K 5215) Bought in Kansu, Ti Tao Hsien, Shih Chia Wan.

Bowl with two very small rudimentary horizontal lugs low down on the widest part of the very low body, which passes over into a high flaring collar.

Brown slip with high polish, reaching down to the small lugs. Same slip also inside to same depth.

Decor painted in black. Inside triangular design (see fig. 45).

Height 81 mm. Diam. 140 mm.

Pl. 109,3 (K 5491) Bought in Lanchow.

Bowl with two lugs of same height as the collar. Precisely halfway between the lugs, but deeper down, two knobs forming in fact two horizontal rudimentary lugs like those of the preceding specimen.

Slip dark violet, on the inside extending to a lesser depth than on the outside. Black paint, for inside see fig. 46.

Height 108 mm. Diam. 192 mm.

K 5235, a small and poorly preserved urn is relatively higher, but otherwise closely resembles Pl. 109,3.

Finds at Kansu, Yung Chang Hsien, San Chio Cheng.

Outside the walled-in place, San Chio Cheng (probably of Sha Ching age), about 150 m. from the wall in a W. direction I found, on slightly higher pebble-strewn ground, sherds of Neolithic pottery and stone implements. The finds covered an area with the black earth characteristic of dwelling sites. We had no time to excavate, but some interesting material was collected on the surface. Some painted fragments (K. 6198, K 2350: 6—8, 10) are shown by fig. 47.

All these specimens have this in common, that the ware is pale yellow, fine-grained and seems to be hard burnt. The colour of the surface brownish-yellow like that of Pl. 109,1. In its painted design also Pl. 109,1 reminds us of text fig. 47 a—c and e, only with the difference that the last-named bowl is also painted in the bottom of the inside (ee). Even the knob-lugs characteristic of Pl. 109 1 and 3 likewise occur in text fig. 47 e.

Text fig 47, d belongs to an urn in shape like Pl. 109,2, though the painted design is quite different.



Fig. 46. Inside decor of Pl. 109,3. $\frac{1}{3}$.

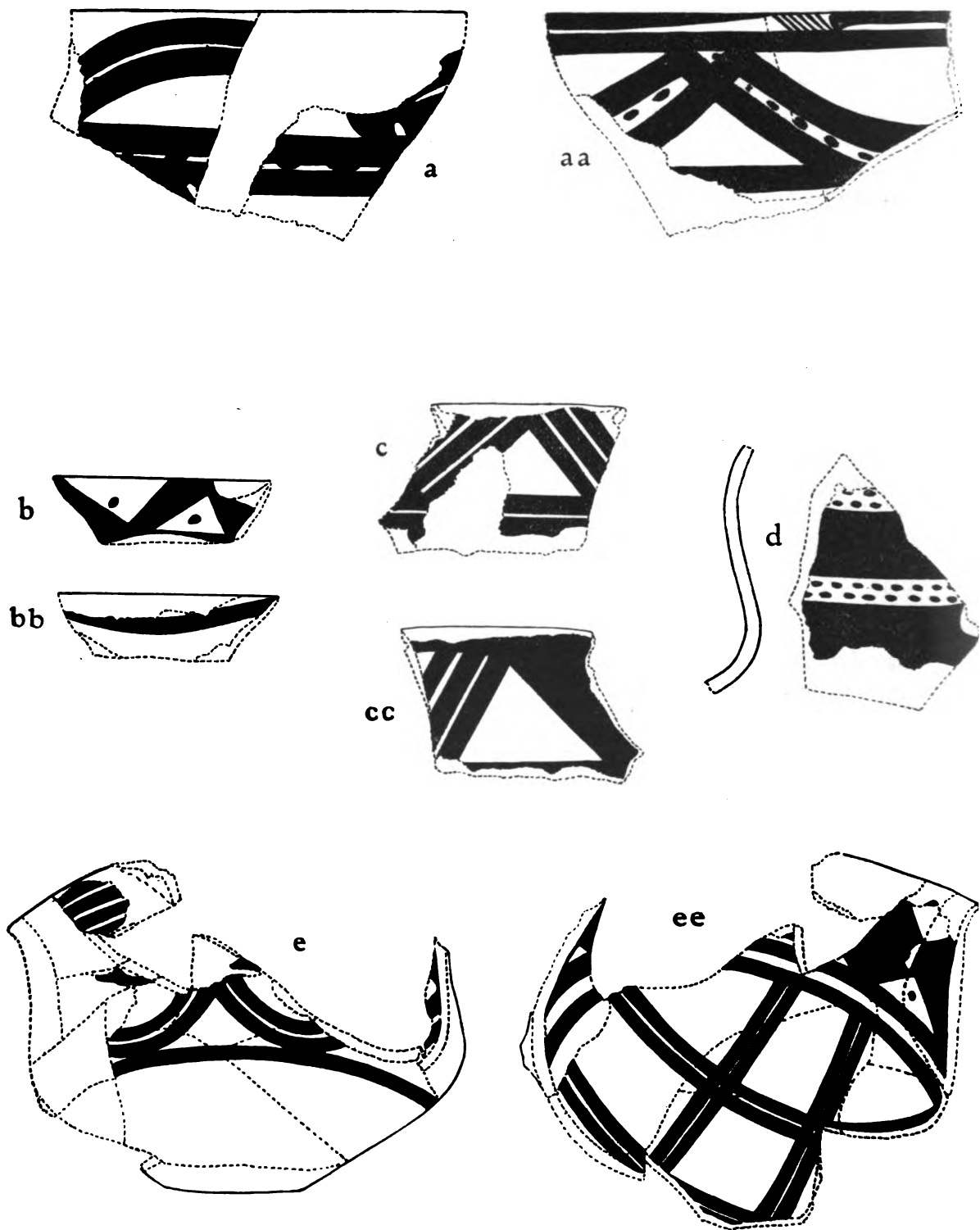


Fig. 47. Finds outside San Chio Cheng.

Mortuary urns.

With the exception of the four vessels which Chuang brought me from supposed graves at Ma Chang Yen in Nien Po Hsien, we were never able to excavate any funeral-urns of the Ma Chang stage. Even Chuang's finds at Ma Chang Yen I have not felt able to accept as indisputable burials.

But a very large number of Ma Chang urns, evidently of mortuary type, were offered to us for sale. These vessels were carefully described by Palmgren. Only a selection of them is reproduced here for special purposes (Pl. 110—117). For descriptive details I refer to Palmgren's monograph, limiting my scope to discussing certain problems.

In Pl. 118 I have combined four vessels which were described by Palmgren as mortuary objects but which, I now find, probably belong to the dwelling-site pottery. My reasons are as follows:

In Pl. 107 and Pl. 108, 4, 6, 9—10 I have reproduced from a Ma Chang dwelling site, Shih Li P'u near Hsi Ning city, a number of painted sherds all of which have the common feature that the black painted design rests on a somewhat thick, brownish-red to violet-red slip.

In Pl. 108, 1, 2, 3, 5, 8 are reproduced five sherds found at the stream near Hsia Hsi Ho, in Hsi Ning Hsien, and one interesting sherd fig. 7 of the same plate, this latter sherd from Ch'ia Yao near Hsia Hsi Ho. I cannot prove that these sherds came from dwelling sites, but this is likely because of their fragmentary state and their very close similarity to the indisputable dwelling-site material from Shih Li P'u. This similarity also includes the thick red slip.

In Pl. 109, 2, 4, 5 we brought together three urns with the same design as Pl. 107, 6—7 and the same red slip.

In the same plate we have also reproduced two bowls, figs. 1 & 3, both with slip over the upper half of the vessels, both inside and outside. The slip of Pl. 109, 3 is deep violet-red, that of Pl. 109, 1 is *light brown with high polish*.

I emphasize these two features, the colour and polish of the slip, because we meet them both in the dwelling-site material which I excavated outside San Chio Cheng in Yung Chang Hsien (text figure 47). All the material shown in this figure — with the single exception of d — agrees very closely with the complete bowl Pl 109, 1.

It seems as if the painted household pottery of the Ma Chang stage is characterized by a red or brown slip covering the upper two thirds of the vessels, both inside and outside. On this slip there is a black decor.

With this fairly safe conclusion as a point of departure we shall now proceed to survey the supposed mortuary urns of the Ma Chang stage.

In Pl. 118 we have brought together four vessels which also have the same kind of red to brown slip as described above.

Pl. 118, 1 (K 5241) had once two lugs, one of which is broken away. Slip brownish red, carelessly smeared in splashes over the basal part of side-wall as well.

Pl. 118,2 (K 5240) Slip brown, reaching some distance down on the inside of the collar — as is also the case with the preceding and following urns.

Pl. 118,3 (K 5234) Slip violet brown.

Pl. 118,4 (K 5616) Slip violet brown, covering the entire inside and an irregular marginal border on the outside.

Pl. XL,3 of Palmgren's monograph certainly has a kind of dirty brown paint carelessly smeared over the upper half. This cannot however be compared with the thick and uniform slip of the vessels described above.



Fig. 48. Urn bought in Lanchow.
(K 5503). $\frac{1}{4}$.

Our Pl 190,1 (K 5294) has, like the urns Pl. 109 and 118, a red slip with the decor painted in black.

Palmgren's Pl. XXVIII,8 is very similar to our Pl. 118,2 and like it has a brown slip on the decorated parts of the vessel.

K 5242, in shape and design very like Pl. 118,1 has a strong violet-red slip.

Text figure 48 (K 5503) is a larger (212 mm. high) carelessly painted urn of the same family as Pl. 118,2, with violet-red slip. Palmgren's XXVII,7 and XXX,10 also have violet brown slips.

It is quite possible that these are funeral urns with a red slip. But the large majority of the funeral urns, Pl. 110—

117, carry no red polished slip; the painting is applied directly upon the naked ware or upon a thin light coating.

As Palmgren has already described these vessels in much detail, I here use them only for discussing specific problems. Some of these will be treated in other chapters.

In the 30th chapter we shall use this material for outlining the existing parallels between Anau and Kansu and for tracing the retrograde evolution of the spiral.

As I do not intend to give individual descriptions of the urns Pl. 110—117, I have denoted them by the numbers of our catalogue.

* * *

The Ma Chang funeral urns are very closely related to the Pan Shan urns of Middle Yang Shao age and form a continuation of this ceramic group.

The overwhelming majority of the Pan Shan urns were large and middle-sized vessels.

Some of the few small urns ascribed by Palmgren to the Pan Shan type, such as his Pl. IX,9 and XIX, 10—11, have very close relationship to Ma Chang urns like our Pl. 115, K 5351 and Pl. 116, K 5331.

In the Ma Chang stage small urns became frequent and they retained the full, rounded shape.

The large urns of Ma Chang have undergone a change when compared with their ancestors of Yang Shao age. As will be seen from specimens like Pl. 110—111, they are pear-shaped, in some instances with very narrow base.

The painted decor has changed very considerably from Yang Shao to Ma Chang. The four large anti-clockwise spirals which are the leading element of the Pan Shan style are now transformed into concentric circles (Pl. 110 and Pl. 111, K 5617). Pl. 111, K 5291 is a unique urn decorated with spirals running clockwise. The death pattern, which forms such a significant element in the Pan Shan mortuary rites, has here almost vanished, and what little remains (Pl. 113, K 5356, 5349, 5352; Pl. 115, K 5351; Pl. 116, K 5331) is transformed into files of spaced-out rectangles, which form an interesting parallel to the Anau style.

The meander-like designs of Pl. 114 pave the way for the powerful meander adorning the necks of the large funeral urns of the Hsin Tien stage (Pl. 127—131). Pl. 114, K 5317 in particular comes near to the Hsin Tien meander.

17.

THE HUI TSUI DWELLING SITE.

In the T'ao Ho valley, three km. W from Tao Sha Hsien city there is a village named Sha Leng Tzu. Half a km. N of this village is a place named Hui Tsui, where we undertook an extensive excavation in a dwelling site of Hsin Tien age.

The village Sha Leng Tzu and the Hui Tsui site are situated just above the T'ao Ho river plain, and one of the branches of the river flows very near the village, in front of which is an elongated island. Immediately above this island I have chosen the datum point (0) of my survey (fig. 49). The topographical conditions of the site should be studied not only with the aid of the map but also by means of the section along the line A-B shown in fig. 50.

The road between Titao and Lanchow runs here upon a low terrace, on which is also situated the village of Sha Leng Tzu. The altitude of this terrace above the datum level is 10—16 m. The terrace terminates on the side overlooking the modern river-plain in a precipitous cliff.

Above the low terrace there rises a lofty, steeply sloping terrace to a height of 70—80 m. above datum level. To the north of Sha Leng Tzu two big ravines intersect this high terrace, forming a number of gullies and islands which stand as

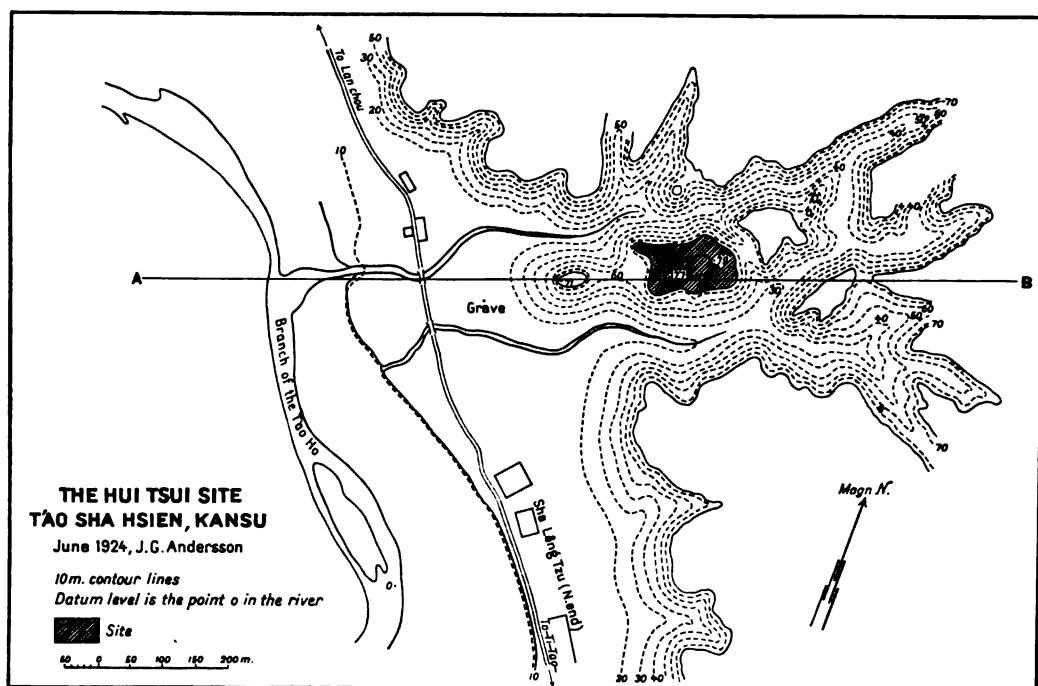


Fig. 49. Map of the Hui Tsui site.

remains of the once continuous high-terraced plain. The largest of these terrace islands, marked in the map with two altitude figures, 77 and 79, is the site of the ancient village of the Hsin Tien stage. By means of narrow isthmuses this central island is connected towards the SW with a very small terrace island marked by the figure 71, and towards the NE with an island nearly as big as that on which the site lies. This complex of islands is surrounded by the 40-metre level. It is apparent that with their steep slopes these islands in ancient times formed a strong natural fortress, and from this fact there follow these two indisputable conclusions:

1. That the people of the Hsin Tien time selected this elevated terrace island for their settlement because it was in an isolated position and could be easily defended. The inducement to settle here must have been very strong, sufficiently strong indeed to overcome the inconvenience of carrying water and other supplies up the very steep slopes.

2. The present topography must in all essentials have already been in existence during the Hsin Tien time. This conclusion is corroborated by the discovery of a Hsin Tien burial at the spot marked Grave on the low terrace below the 71 m. island.

Excavations were carried out in the ashy earth all round the island. Nevertheless, only a very small marginal part of this rich site was excavated. Our findings

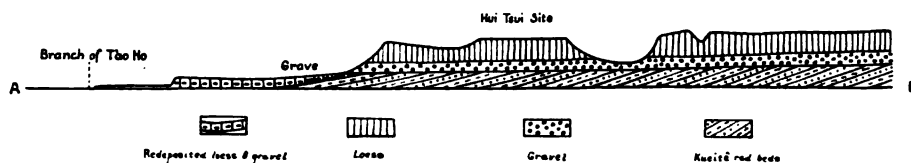


Fig. 50. Section through the Hui Tsui site.

here comprised a rich and characteristic collection of village furnishings of the Hsin Tien stage.

On the top of the island there are two modern burial grounds, one small rectangular, marked by the figure 77, and another larger, also rectangular but with a curved contour to the east, marked by the figure 79. A noteworthy feature of the excavation was the discovery on the south side of the island of a Wu Shu Han coin in the ashy earth. The find was made as shown in fig. 51 0.8 metre beneath the surface of the island in the slope 1.5 metre outside the edge of the island. This is only one of the several instances noted by me in which objects from historical times have through the secondary action of Man become intermixed with disturbed prehistoric deposits. There may once have been on the top of this prominent island a Han burial containing this Wu Shu coin. During a much later period a farmer, in his efforts to level the somewhat hilly surface of the island, cut off the central calotte and carted the earth out to the edge where it was dumped to increase the area of the field. During this replacement of soil the Han coin became embedded in the ashy earth carrying the Hsin Tien stage artifacts.

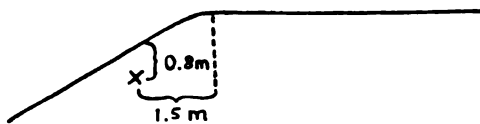


Fig. 51. Hui Tsui. Finding place of Han coin.

Objects of stone.

Pl. 119,1 (K 1576) Axe with narrow hind part (compare a similar specimen from N. Chihli K 5, Pl. 21,5)

L. 126 mm. B. 67 mm. Th. 27 mm.

Pl. 119,3 (K 1694) Axe with two broad fossae, one on each side. These fossae produced by hammering. L. 122 mm. B. 52 mm. Th. 27 mm.

Pl. 119,4 (K 1573) Thin chisel with slightly asymmetrical edge. Rock of greenish-grey slate. This specimen, as also the following one, belong to the same group as the thin adzes from Pan Shan (Pl. 68).

L. 128 mm. B. 53 mm. Th. 11 mm.

Pl. 120,29 (K 2255: 69) Small thin chisel with asymmetrical edge. Black schist. L. 64 mm. B. 30 mm. Th. 9 mm.

Pl. 119,5 (K 2255: 67) Greenish grey sandstone. Pestle-shaped stone, only slightly retouched. L. 130 mm.

Pl. 120,1 (K 2255: 74) Small discus-shaped object formed by chipping round a flat pebble of grey limestone.

Pl. 120,28 (K 2255: 57) Rectangular stone object with two bi-conical holes. L. 45 mm.

Pl. 120,30 (K 2255: 56) Fragment of pendant or whetstone(?). At the sides shallow indentations.

Bone Instruments.

Pl. 119,2 (K 2255: 1) Hoe, much worn, made from a scapula of *Bos taurus*. Several such bone hoes, more or less worn, all made from shoulder-blades, were found in this site.

Pl. 121,1 (K 2255: 9) Comb made from a rib-bone. The thickness of the rib was reduced to half and then the dents of the comb were produced.

Pl. 121,3 (K 2255: 10) Smaller bone comb.

Pl. 121,2 (K 2255: 52) Instrument made from a hollow bone. Flat edges at both ends.

Pl. 121,4 (K 2255: 21) Flat bone instrument with edge at one end and bi-conical hole at the other.

Pl. 121,5 (K 2255: 2) Hollow bone, cut square off at the narrow end; at the other end eight cylindrically bored holes

Pl. 121,12 (K 2255: 11) Cylindrical object made from a hollow bone. Whole object perfectly polished, probably from long wear. Surface pleasingly cream-coloured.

Pl. 121,11 (K 2255: 3) Flat bone instrument, rounded at one end and sharply pointed at the other.

Pl. 121,10 (K 2255: 12) Spoon-shaped instrument made from a bone with narrow central cavity.

Pl. 121,6—9 (K 2255: 40, 20, 42, 35) Perforated bones, possibly worn as pendants.

Pl. 120,26 (K 2255: 18) Bone instrument pointed at one end.

Pl. 120,27 (K 2255: 38) Small bone awl, pointed at both ends.

Pl. 120,23 (K 2255: 22) Very slender awl.

Pl. 120,14, 16 (K 2255: 26, 31) Minute awls, pointed at both ends.

Pl. 120,17 (K. 2255: 28) Minute awl, pointed at one end, obtuse at the other.

Pl. 120,18 (K 2255: 27) Minute awl, one end pointed, the other with square-cut edge.

Pl. 120,22 (K 2255: 36) Long needle with square-cut upper end.

Pl. 120,21 (K 2255: 37) Very long needle, upper end weathered.

Pl. 120,13, 15, 19, 20, 24, 25 (K 2255: 32, 29, 5, 6, 7, 4) Sewing needles.

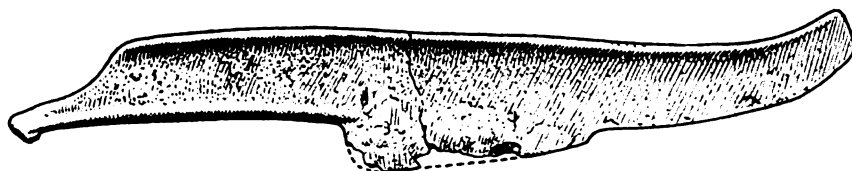


Fig. 52. Bronze knife from Hui Tsui. $\frac{2}{3}$.

Bronze objects.

Fig. 52 (K 2392: 1—2) Knife of bronze with back thickened (5 mm.). Also front of handle thickened (4 mm.). Length 170 mm.

We have found the same characteristic narrow end of the handle — well known from «razors» of the European bronze age — on an Ordos knife (Hunting Magic Pl. V, 4). The backward curve of the blade we know from another Ordos specimen (Hunting Magic Pl. I, 7). With its thickened margins this specimen resembles our Hui Tsui specimen in every feature except the end of the handle.

This specimen, which is deeply decomposed, was found in two halves a little more than a metre apart. With them were found a nail-like, entirely decomposed object 64 mm. long, and a triangular fragment 21 mm. long, which might possibly have formed the projecting part between handle and blade of the knife as seen in the specimen in «Hunting Magic» Pl. I, 7, here reproduced as our fig. 53.

Pl. 120,6 Small bronze object, strongly decomposed. Resembling a twin-button or the like.

Pl. 120,7 (K 2255: 15) Bronze button with distinctly offset margin.

Pl. 120,8, 10 Nail-like bronze objects, much decomposed.

Pl. 120,9 (K 2255: 16) Nail-like metal object, entirely free from carbonate crust.

Beads.

Pl. 120,4 (K 2255: 14) Tubular bead of turquoise colour. Probably glass paste.

Frontispiece 2,8 (K 2255: 13) Bead or pendant of turquoise.

Pl. 120,2 (K 2255: 48) Bead of white marble.

Pl. 120,3, 5 (K 2255: 46, 47) Beads of white, opaque, hard substance.

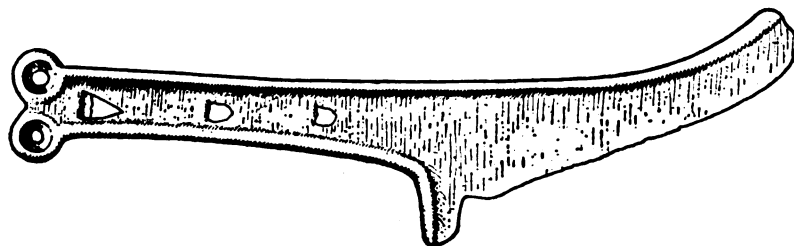


Fig. 53. Bronze knife (after Hunting Magic Pl. I, 7.) $\frac{2}{3}$.

Cowrie shell.

Pl. 120,12 (K 2255: 45) Half of a cowrie shell.

Clay figurine.

Pl. 121,13 (K 2255: 8) Figurine of burnt clay. Colour reddish grey.

Decorated below with incised, slightly curved lines, above with impressed points. Double rows of points also upon the shoulders. Top weathered and obscure.

Pottery.

With the Hsin Tien period, to which Hui Tsui belongs, there is a marked change in the ceramic furniture. The Ma Chang pottery, with its many innovations, most of them on the way towards degeneration, still stands solidly founded upon the Yang Shao pottery.

In the Hsin Tien stage we meet a new ware, coarser and more porous, as a whole an inferior product. The shapes of the vessels are new, as is also to a considerable extent the painted decor. Nevertheless, much of the shapes and part of the decor are inherited from the Ma Chang stage.

That strict differentiation in one kind of dwelling-site pottery and an entirely different group of mortuary ceramics, which was so rigidly upheld in Middle Yang Shao and still existed in the Ma Chang stage, had largely vanished in the Hsin Tien period.

There is in the Hui Tsui site a grey unpainted ware (Pl. 124) different from all the rest and a true household pottery. But all the painted sherds — possibly with two exceptions — are closely related to the Hsin Tien mortuary pottery, to which reference will constantly be made.

Pl. 122,1,2 (K 11240: 39, 28) Two small jugs of inferior Hsin Tien ware.

Pl. 122,9 (K 11240: 11) This is one of the sherds with a strong likeness to Ma Chang, especially the sherd in fig. 44. The ware is fine-grained, hard burnt and quite unlike the Hsin Tien ware. The deep violet slip and the black design are of Ma Chang type.

Pl. 123,7 (K 11240: 29) Marginal fragment of a very large vessel. Ware Hsin Tien type, but decor in black and violet reminiscent of Ma Chang.

Pl. 122,5, 7, 12, 13, 14, 15, 16, 17, 18, belong to a group of vessels which were more or less like the urns in Pl. 137.

The ware is typical Hsin Tien. The violet zonal slip and the line-filled triangles are inherited from Ma Chang. Pl. 122,7 is interesting in having line-filled rhombi. Most of these specimens carry in the unpainted interspaces the z-shaped marks which Professor Karlgren has interpreted as symbols of lightning.

Pl. 122,4 (K 11240: 22) is a sherd of a bowl with contracted mouth like those of Pl. 140. K 5507 of this plate is in design the nearest to this sherd.

Pl. 122,19 (K 11240: 20) is a marginal sherd of an urn decorated like Pl. 135, K 5668.

Pl. 122,3, 6, 8, 10, 11 are sherds of typical Hsin Tien ware and shape, of which I cannot show counterparts in complete urns.

Pl. 123 represents in most cases very large urns. Fig. 7 has already been discussed above.

Pl. 123,5, 6 (K 11240: 5,33) belong to the type of Pl. 137.

Pl. 123,1, 2, 3, 4 (K 11240: 31, 9, 19, 30) can safely be referred to urns like those of Pl. 127—130.

Pl. 123,6 (K 11240: 32) is an interesting specimen with a mark upon the neck resembling the marks upon the urns in Pl. 109,2, 4, 5 of Ma Chang age.

Pl. 123,8, 9 (K 11240: 6, 21) are nondescript specimens of which I cannot offer direct counterparts.

Pl. 171,1 (K 5906) Ware brick-red, with a grey-white slip. Painting done in red with black borders. Concentric bands round and below the collar. Incomplete spirals running from one leg to another. The outside of the collar painted in black as shown by fig. 54.

Li tripod of unique shape with high collar. Height 146 mm.

Pl. 174,2 (K 6163) Unpainted Li tripod with bulbous legs.

Pl. 124,9 (K 11240: 34) Leg of a similar but probably more slender tripod.

Pl. 124,8 (K 11240: 23) Marginal sherd of Li tripod. Over one leg a lug of unique shape, with incised lines recollecting those of the figurine Pl. 121,13. Between the legs two mammae.

Finally we have to deal with seven sherds, Pl. 124,1—7, which represent a true household pottery quite different from the ceramics of the Hsin Tien graves.

The ware is grey in 2, 4, 5 and 7 but brick-red in 1, 3 and 6. All specimens are grey both inside and outside. The incised design is clearly seen on the plate.



Fig. 54. Painting on outside of collar.

Pl. 171,1. $\frac{1}{2}$.

HSIN TIEN GRAVE FIELDS.

The Hsin Tien sites.

Hsin Tien is a small market-place on the Lanchow-Titao road, 50 km. from Lanchow in T'ao Sha Hsien, in the T'ao Ho valley. The T'ao valley is here broad and fertile, extending S-N. Some distance above Hsin Tien is the confluence of the main T'ao valley and a tributary valley coming down from Ning Ting Hsien. (Pl. 2 B).

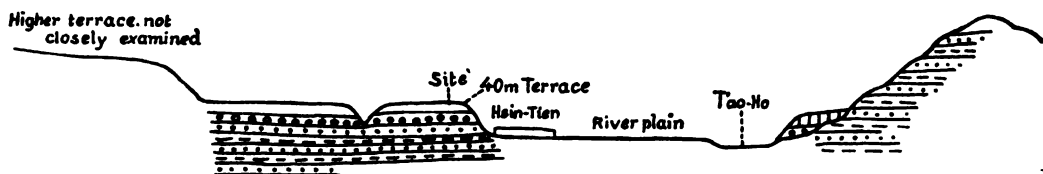


Fig. 55. Cross-section of the T'ao valley.

On the east side of the T'ao valley there is at Hsin Tien a large Malan terrace, about 40—60 metres in height, consisting of red beds, basal conglomerate and basal gravel with loess superimposed. The same terrace is very beautifully developed higher up the river at the confluence of the above-mentioned valley. On the west side of the T'ao valley opposite Hsin Tien there are high hills of the red beds, and the recent river erosion has almost completely cut away any traces of the 40-metre terrace. Further down, on the west side of the river opposite T'ao Sha city, the terrace is also well developed.

East of Hsin Tien, at a distance estimated to be about two kilometres, there rise flat loess-covered hills which seem to form together a higher and older terrace, estimated to rise at least another 40 metres above the afore-mentioned 40 metre terrace. The geological and physiographical features round Hsin Tien are shown by the cross-section sketch (Fig. 55).

Hsin Tien, the market place, is a big village. 600 metres N of the northern end of the main village is a small group of houses Kuo Chia Chuang at the mouth of a big ravine.

Hsin Tien (A) is a burial site, situated on the north side of the big ravine. The burial site is bounded by the big ravine to the south, and in W and E by ravine roads. To the N it reaches up to the level terrace plain at an altitude of about 60 m.

The area (site A) where prehistoric graves had been found has an extent of 150 m. in a W—E and about the same in a N—S direction.

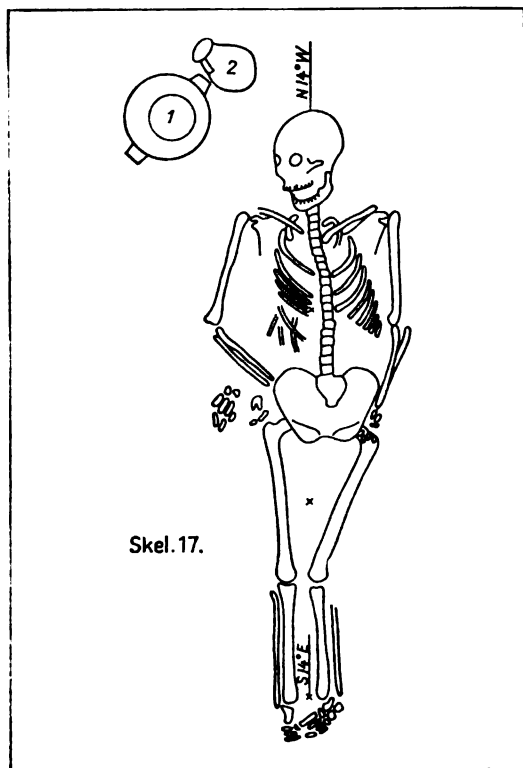


Fig. 56. Hsin Tien A. Skel. 17. Scale 1:20.

In the SW part of the site the graves had been excavated by villagers during the weeks before our arrival. At least one hundred graves had been turned over in this deplorable manner, and most of the pots of Hsin Tien type bought by me in Lanchow certainly came from this spot. Some time before our arrival the excavation had been stopped by order of the T'ao Sha Hsien magistrate. This part of the field was a miserable sight. The whole area was pitted, and scattered human bones indicated what had been going on.

Our own excavations were undertaken in two main areas, and in addition a few skeletons were found further north and east.

There is little doubt that numerous skeletons are still left untouched in this area. Our excavation was discontinued because the 25 skeletons here excavated had given us a fairly complete representation of the type of burial and the funeral pottery, whereas the finds of small objects were so extremely scarce as not to encourage a continuance of operations.

Due east of Hsin Tien village and 100 m. N of a small hamlet named Chang Chia P'u we found an isolated, very interesting burial (site E).

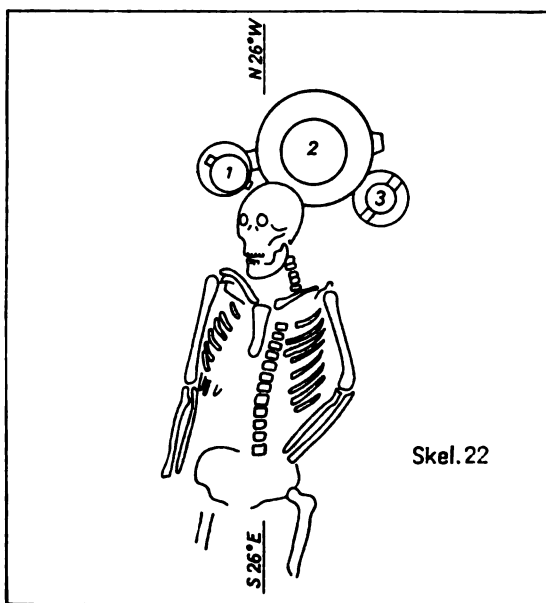


Fig. 57. Hsin Tien A. Skel. 22. Scale 1: 20.

四時定

The Ssu Shih Ting site.

During our stay at Hsin Tien we heard of a site just opposite T'ao Sha Hsien city on the western bank of the T'ao Ho. The place belongs to T'ao Ho Hsien in spite of its proximity to T'ao Sha city. The nearest inhabited place is Ssu Shih Ting. 5 li east from this place is a ravine named Niu Chiao Kou, in the immediate vicinity of which is the site.

At this place the villagers had excavated a large number of pots of Hsin Tien type and I bought 23 of them, among which the remarkable specimen Pl. 196. Later on my men excavated 20 burials here.

The site lies upon a steeply sloping spur directly overlooking the T'ao Ho river. The average height above the river is 66 m. and the difference in level between the lowest and the highest graves was estimated at 20 metres.

Mortuary urns of Hsin Tien A and Ssu Shih Ting.

The mortuary urns of the Hsin Tien stage were studied by Prof. O. Janse. His manuscript and plates were brought to Nanking in 1936 in order to have them printed there. Owing to the difficulties caused by the war, this material still remains with The Geological Survey in the interior of China.

In the following pages we will give only a general survey of the mortuary ceramics of the Hsin Tien stage.

Pl. 127—140 represent the material we propose to discuss. In addition, Pl. 194—196 illustrate Hsin Tien urns with animal and human representations. Pl. 172 shows three tripods, of which fig. 3 was excavated at Ssu Shih Ting and probably the two others are also of Hsin Tien age.

As we do not intend to describe in detail each of the vessels reproduced in plates 127—140, they are marked on the plates with their catalogue numbers. The letter H signifies that the vessel was excavated at Hsin Tien A, S that it was excavated at Ssu Shih Ting and B that it was bought.

It is a general characteristic of the Ssu Shih Ting vessels that their decor is relatively simple, when compared with the elaborately decorated Hsin Tien urns.

Among the mortuary ceramics of the Hsin Tien stage there are only two main forms, the urn and the bowl, but within each of these two groups there is much variety of shape. Pl. 127—137 all relate to of the Hsin Tien urn. There are relatively slender specimens, such as those in Pl. 128—129, in comparison with the broad urns of Pl. 132—133.

There are specimens with a sharp angular profile, Pl. 127—131, and urns with rounded contour, Pl. 133, 135. There are urns with narrow mouth Pl. 131, K 5782 and Pl. 135, K 5540, as contrasted with the flaring mouth of the majority of these urns. Still, there is little doubt that all these urns — with the possible exception of the urns of Pl. 135 — are only varieties of one type. In chapter 22 we shall discuss the possible origin of this vessel from the large Ma Chang urn.

The Hsin Tien bowl is shown in Pl. 138—140. In this group also there is much variety. There are low vessels, the majority, but occasional high ones, Pl. 138, K 5554 and Pl. 140, K 5907. There are bowls without lugs, with one lug and with two. Nevertheless, it is easy to see that they form a unit characterized by the contracted mouth, which is inherited from the ancestors of these bowls: the small, low Ma Chang urns (see chapter 22).

* * *

When we now turn to the painted decor of the Hsin Tien mortuary vessels we shall be dealing with a more complex problem.

The elements that constitute this decor may be treated under the three following headings:

1. *Very simple elements, lacking specific character:*

Vertical straight lines: Pl. 127, 132, 133, etc.

Vertical undulating lines, mostly combined with straight lines: Pl. 127, 132, 137, 140.

To this group may also belong the horizontal, often double wavy-lines: Pl. 127 etc., but similar wavy bands (note specially the two upper urns of Pl. 137) occur abundantly in the Yang Shao — Ma Chang decor.

2. *Elements derived from the Yang Shao — Ma Chang decor.*

Horizontal wavy lines.

Line-filled triangles.

Meander.

Double hook.

Zigzag bands.

Saw bands.

All these elements will be fully treated in chapter 22.

3. *Symbols, partly the beginnings of writing.*

In an important article »Some fecundity symbols in ancient China» BMFEA N:o 2, 1930, Karlgren called attention to the occurrence on the Hsin Tien urns of sun wheels associated with Z-like signs which he identifies with the archaic Chinese pictograms for *ji* »sun» and *tien* »lightning». As these symbols on the urns are associated with mammals, probably domestic animals, most probably they belong to an agricultural fertility cult.

On the same urns and in positions similar to those of the sun and lightning symbols there are eight further signs, fig. 58, which belong to the decorative system just as little as do the *ji* and *tien* signs. Possibly one or more of these figures will also be eventually identified with archaic pictograms.

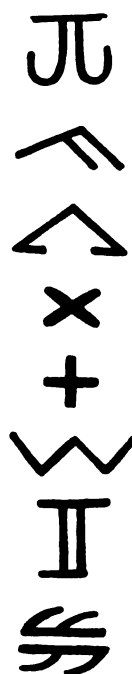


Fig. 58. Eight signs from urns of Hsin Tien age.

Small objects from Hsin Tien A and Ssu Shih Ting.

These burials were very poor in small finds and we can report only the following objects:

Pl. 126,5 a—e (K 2370: 1—5) These five objects were offered to us by the villagers and were said to have been found with a burial that we named »the copper-skeleton», to which were also attributed our urns K 5624 and K 5627, which are very similar to Pl. 132, K 5718 and Pl. 133, K 5760 respectively.

Pl. 126,5 a—c are small bronze objects. a is a single button with long, powerful bridge. Similar bridges are found on b and c, which may have been twin-buttons with a connecting bar.

d and e are conical bone objects with the interior carefully hollowed out. Arrow-points?

Pl. 126,6 (K 2377) is a globular stone bead said to have been found in the Hsin Tien A site.

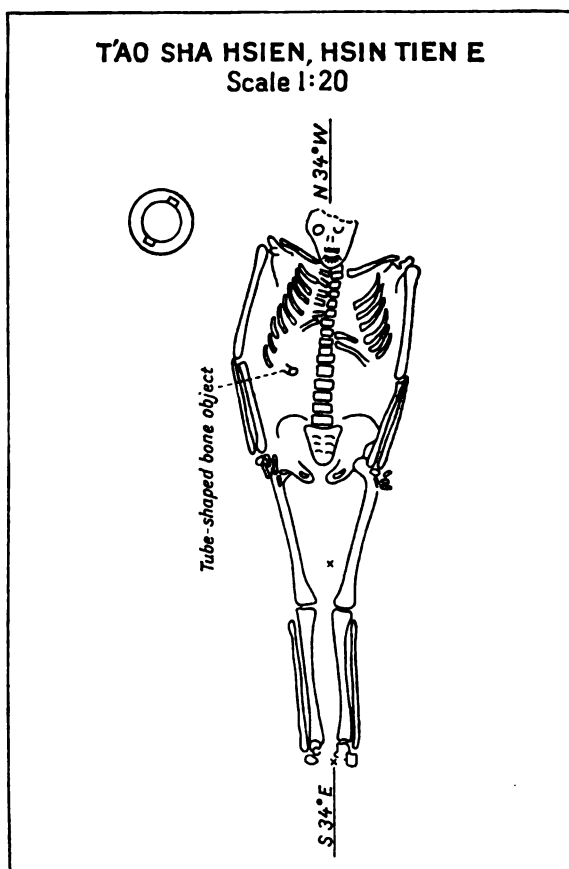


Fig. 59. The Hsin Tien E burial.

Pl. 126,7 (K 2369) A very fine and perfectly polished bead of turquoise with black matrix, found in refuse near Skel. 6.

Pl. 126,8 (K 2380) Bone-object found with Skel. 24, Hsin Tien A. One end rounded, the other square-cut. Like Pl. 121,10 but smaller.

K 2376. Small bronze fragments found at left side of pelvis of Skel. 4, Hsin Tien A.

Near the left hand of Skel. 17, Hsin Tien A was found a stone spinning whorl.

On the chest of Skel. 10, Hsin Tien A was found red ochre (K 2372), as also at the left clavicle of Skel. 12 of the said site.

Red pigment was found on the left femur of Skel. 13, and red-brown stain was noticed on the skull of S. 14, on the bones of S. 15 and S. 17—20, all of Hsin Tien A.

Pl. 126,9 (K 2067) is a rectangular object of micaceous sandstone with four biconical holes. With Skel. 3, Ssu Shih Ting.

A cylindrical white bead, K 2374, was said to have been found in the Ssu Shih Ting site.

The Hsin Tien E burial.

At a place which we marked as Hsin Tien E, and which is situated 100 m. N of a hamlet Chang Chia P'u, my assistant Mr. P. L. Yuan noticed some human bones protruding from a small cliff of loess-like soil.

This isolated burial was excavated by me and one of my workmen (fig. 59).

The urn found in this grave (K 6164) was reproduced in our Pl. 6 B in order to show our bandaging technique. When later on I needed photographs to show the painted decor I found that the specimen was evacuated because of the war, and consequently I had to be content with reproducing in Pl. 125 the bandaged vessel from both sides. Fortunately the decor is fairly clearly visible through the bandaging paper.

In shape this urn coincides fairly well with other Hsin Tien vessels shown in our Pl. 135, and with an urn K 5818. The bottom is rounded and the body passes

gradually into the tall neck. The large lugs reach from the uppermost part of the body halfway to the neck.

The body is decorated with two zones of «tent-shaped» figures in three-fold lines between horizontal lines. The neck is decorated with three-fold transverse lines, rather irregularly drawn.

Round the neck there was a necklace consisting of: 15 heavy beads, short and broad, cut in soft reddish limestone with whitish veins (Pl. 126,3), 72 long white beads of a crystalline, non-calcareous substance (Pl. 126,1), 46 small white beads, some of them exceedingly thin (Pl. 126,2). Probably of the same substance as the second group.

On the right half of the chest a tubular bone object. 40 mm. long and 17—19 mm. i diam. A circular furrow near one end, and near this furrow two holes (Pl. 126,4).

Outside the right humerus lumps of a red substance.

A pot from Nien Po Hsien.

This specimen Pl. 195 (K 5986) is described in chapter 26. It is dated as Early Hsin Tien or rather perhaps, Ma Chang. It is closely similar to Pl. 125 and 135 (note the shape and the occurrence of the «tent pattern» on three of these urns. For this reason the vessels Pl. 125 and 135 should be tentatively dated Early Hsin Tien.

19.

THE SSU WA SHAN SITES.

History of the discovery and description of topographical features.

The Rev. Robert Ekvall of the Titao mission had kindly reported to me the occurrence of «hei t'u» with pottery at a place called Ssu Wa Shan situated in Ti Tao Hsien, 35 li (20 km.) south of Titao city. During a trip which I undertook with him to a coal mine, 80 li south of Titao, on the 7th—9th of July 1924 we had an opportunity, when going up on the 7th, of confirming the accuracy of the report, and upon our return on the 9th I stayed for one day and was then able to prove the existence here of a dwelling-site of Yang Shao type and a burial place of a more recent period and of a peculiar type, so far known only from this place and named the Ssu Wa type.

A few days later I sent up two of my collectors Chuang and Li, and they worked on the burial site from the 13th to the 15th of July. Unfortunately I was unable to return for a survey of the place, so that the following is based only upon my recollections from my short visits on the 9th—10th of July.

Ssu Wa Shan is a village situated on the west side of the river at the base of a low terrace about 10 metres high, to judge from memory. At the edge of this terrace, just above two natural springs of pure cold water, is a temple used as a school. Almost due west of this temple is a road, and the sites are on both sides of this road, partly exposed in the wall of the road ravine.

In the western wall of the road ravine we first noticed some places where ashy earth was exposed, one of them yielding a quite useful collection of typical Yang Shao dwelling pottery, amongst which was a nearly complete bowl painted both inside and outside. A pocket containing Yang Shao pottery, mostly coarse monochrome vessels, was also seen NE from the first-mentioned place east of the road and at a somewhat lower level.

These observations seem undoubtedly to indicate that we had found at this spot some traces of a dwelling-site of the Yang Shao stage.

On the west side of the road, where the loess cliff formed by excavating earth attains its maximum height, something like 6—7 metres, we were shown by the villagers a place where numerous pots had been unearthed together with human skeletons. Moreover, a considerable number of pots were offered us for sale, the prevalent type being a monochrome vessel, both very small and large specimens, a vessel the peculiar feature of which is that the mouth is not circular but oblong when viewed from above, and is considerably higher where the ears are attached to the saddle-shaped rim. In addition to these flat-bottomed vessels we also bought tripods of very small size resembling the Ting type, and a considerable number of medium-sized Li tripods. The majority of these are monochrome and this type belongs most certainly to the same grave type as the oblong-mouthed vessels. Two painted Li, one of them particularly beautiful, were said to have come from the same burial site, but this could not be confirmed by our all too limited diggings. We were also shown a bronze object. It was made of a yellow brass-like material, the appearance of which made me disinclined to believe that it had anything to do with the other finds, but Chuang's find of a bronze armlet has later led me to reconsider the matter. A number of stone axes said to have come from this place were also bought by us.

Chuang, with the assistance of Li, excavated altogether eight graves, and No. 1 is specially noteworthy. Together with the incomplete skeleton there were found near the position of the head a Li tripod, a stone axe (K 2045) Pl. 17,3, and at the left side of the pelvis a complete armlet of copper.

One feature worthy of notice is that in grave 8 remains of domestic animals seem to have been deposited beside the dead.

Description of the Ssu Wa Shan graves.

(Topographical features according to plans drawn by my servant Li)

Skel. 1. A rather irregular accumulation of human bones. Near the skull a tripod and a stone axe. At the pelvic region a copper armlet.

- Skel. 2. No bones. An aggregate of seven pots and a tubular bone implement.
Skel. 3. Two pots.
Skel. 4. Four pots.
Skel. 5. Three pots.
Skel. 6. Four pots, the mouth of one of them, No 3, covered by a flat pebble.
Skel. 7. Five pots.
Skel. 8. A mandible and some other bones, with three pots and a pair of Capra horns. Pot 1 is a bowl, pot 2 an urn covered by a flat pebble and pot 3 a Li tripod.

Description of Ssu Wa Shan mortuary pottery.

Pl. 141. Skel. 1 pot. 1. (K 5685) Small Li-tripod with very short legs and low flaring collar. Ware light-grey.
Diam. 102 mm. Height 76 mm.

Pl. 141. Skel. 2 pot 1. (K 5571) Ware greyish brick-red. Surface smooth and glossy.

Medium-sized urn with wide saddle-shaped mouth. Height 205—231 mm. Diam. 222 mm.

Skel. 2 pot. 2. (K 5561) Fragmentary vessel not photographed. Medium-sized urn with saddle-shaped mouth. Small lugs and very narrow base. Between the lugs and below the lowest part of the saddle-shaped mouth an inverted crescent-shaped, indented raised band.

Height 290 mm.

Skel. 2. pot. 3. (K 5560) Only the bottom part of an urn.

Pl. 141. Skel. 2, pot 4. (K 5684) Ware greyish-pink. Surface mostly smooth. Small typical broad Ssu Wa urn with saddle-shaped mouth.

Height 107—122 mm. Diam. 122 mm.

Pl. 141. Skel. 2, pot. 5. (K 5687) Ware grey-brick-red with numerous mineral grains. Surface rugged. Mouth only slightly saddle-shaped. On the collar between the two lugs some irregular dark vertical bands, possibly a kind of very irregular painting. At the top of the lugs on each side two small pointed knobs.

Height 130—135 mm. Diam. 134 mm.

Pl. 141. Skel. 2, pot. 6. (K 5569) Ware reddish-grey. Surface smooth, partly glossy. The vessel covered with a yellowish slip.

Medium-sized vessel with markedly saddle-shaped mouth.

Height 210—231 mm. Diam. 224 mm.

Pl. 141. Skel. 2, pot 7. (K 5558) Ware grey. Surface smooth, glossy.

Big urn, very fragmentary. The saddle-shaped mouth narrow.

Height 390 mm. Diam. 303 mm.

Pl. 142. Skel. 3, pot 1. (K 5681) Ware grey. Surface smooth and glossy.

Broad vessel with slightly saddle-shaped mouth. Height 116—126 mm. Diam. 135 mm.

Pl. 142, Skel. 3, pot 2. (K 5679) Ware coarse, reddish-brown. Surface greyish, rough.

Small vessel with wide, saddle-shaped mouth. On either side beneath the lowest part of the mouth an irregular raised band.

Height 124—145 mm. Diam. 118 mm.

Pl. 142, Skel. 4, pot. 1. (K 5682) Ware brown, somewhat smoothened.

Small urn with slightly saddle-shaped mouth. The upper contour of the lugs is also concave.

Height 152 mm. Diam. 146 mm.

Pl. 142, Skel. 4, pot 2. (K 5683) Ware probably brownish.

Urn unusually low, its lower half nearly globular. Mouth very broad, saddle-shaped.

Height 103—110 mm. Diam. 134 mm.

Skel. 4, pot 3. (K 5678) Ware reddish-brown.

Small very fragmentary vessel. Mouth saddle-shaped. One knob on either side at the top of the lug.

P. 142, Skel. 4, pot 4. (K 5680) Ware dark grey. Surface slightly smoothened.

Very broad urn with typical Ssu Wa Shan profile. Mouth broad, saddle-shaped. Upper contour of lugs also concave.

Height 121 mm. Diam. 150 mm.

Pl. 142, Skel. 5, pot 1. (K 5773) Ware grey. Surface smoothened.

Small urn of typical Ssu Wa-type with deeply saddle-shaped broad mouth and the upper contour of the lugs concave.

Height 82—95 mm. Diam. 112—114 mm.

Pl. 142, Skel. 5, pot 2. (K 5677) Ware greyish-brown. Surface smoothened, partly black through secondary burning.

Smallest of all the Ssu Wa Shan urns. Mouth broad, saddle-shaped.

Height 78—86 mm. Diam. 97 mm.

Pl. 142, Skel. 5, pot 3. (K 5688) Ware grey with a brick-red coating on the inside.

Small typical Ssu Wa Shan urn with saddle-shaped mouth.

Height 94—102 mm. Diam. 99 mm.

Pl. 143, Skel. 6, pot 1. (K 5568) Ware greyish brick-red. Surface both inside and outside rough. Brick-red with grey, dark and light spots.

Medium-sized vessel, wide saddle-shaped mouth. Below lowest part of mouth on either side superimposed bands, which are indentated.

Height 154—170 mm. Diam. 129—134 mm.

Pl. 143, Skel. 6, pot 2. (K 5567) Ware grey to brick-red. Surface inside and outside smooth, partly glossy.

Broad medium-sized vessel with saddle-shaped mouth.

Height 235—250 mm. Diam. 241—250 mm.

Pl. 143, Skel. 6 pot 3. (K 5585) Ware reddish-grey with numerous mineral grains. Surface rough.

Medium-sized vessel with broad saddle-shaped mouth. The contours above the lugs boldly convex. Between the lugs on either side below the lowest part of the mouth superimposed indentated horizontal bands.

Height 253—280 mm. Diam. 217—223 mm.

Pl. 143. Skel. 6, pot 4. (K 5778) Ware light reddish-grey. Upper part of surface both inside and outside smooth. Traces of whitish coating.

Small urn with wide saddle-shaped mouth.

Height 85—94 mm. Diam. 83—86 mm.

Pl. 143. Skel. 7, pot 1. (K 5565) Ware grey. Surface rough.

Small, slender urn with saddle-shaped mouth. Convex contour of margin over the lugs.

Height 144—160 mm. Diam 110—124 mm.

Pl. 143. Skel. 7, pot 3. (K 5566) Ware reddish-grey. Surface slightly smoothened.

Very tall vessel with circular circumference (as contrasted with most of the other Ssu Wa Shan urns, which are oval in circumference).

Neck broken. Shape of mouth unknown. Base very narrow. Lower half of vessel truncated, conical.

Height 487 mm. Diam. 367 mm.

Pl. 143. Skel. 7, pot 4. (K 5570) Ware brick-red with very coarse mineral grains. Surface roughish, brick-red with dark spots.

Large vessel with wide saddle-shaped mouth. Along the outside of the lugs and below the lowest part of the mouth superimposed indentated bands.

Height 328—357 mm. Diam. 282—297 mm.

Pl. 143. Skel. 7, pot 5. (K 5774) Ware brick-red. Surface smooth.

Small urn with deeply saddle-shaped mouth. Below one lug there is a superimposed eye consisting of a white bead pressed into a black button of some asphalt-like substance (see fig. 60).

Height 121—137 mm. Diam. 136—139 mm.



Fig. 60.
Detail from
K 5774.

Pl. 143. Skel 8, pot 1. (K 5564) Ware brick-red. Surface somewhat smoothened.

Medium-sized urn circular in circumference and with circular level mouth. No lugs.

Height 238 mm. Diam. 220 mm.

Pl. 143. Skel. 8, pot 2. (K 5586) Ware chocolate brown. Surface irregular, slightly smoothened.

High urn with very narrow saddle-shaped mouth. Lower half truncated, conical.

Height 316—335 mm. Diam. 249—263 mm.

Pl. 143. Skel. 8, pot 3. (K 6137) Ware brownish grey. Surface rather coarse.

Li tripod with bulbous legs and two lugs. Along the outside of the lugs indentated superimposed bands. Similar small bands also between the legs and on the side of the lugs. Between the lugs on one side a W-shaped indentated zigzag band.

Height 136 mm.

* * *

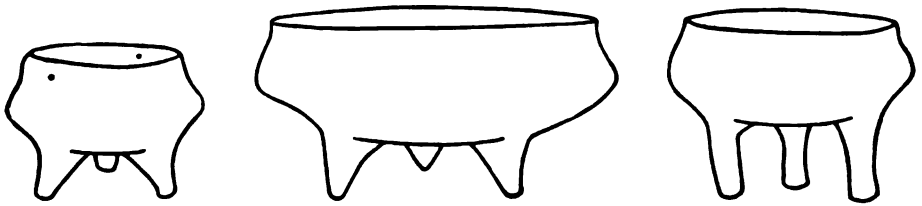


Fig. 61. Small pottery Ting bought at Ssu Wa Shan.

The pottery of the Ssu Wa Shan graves forms a strange interlude in the sequence of painted pottery cultures in Kansu.

Some Hsin Tien urns, Pl. 137, with their gently saddle-shaped mouths forestall the Ssu Wa urns, and it is easy to trace the general outline of the typical Ssu Wa Shan urn from these Hsin Tien pots of Pl. 137.

However, the Ssu Wa funeral urn constitutes a type of its own. The constructive mat-impression, which can sometimes be faintly traced, was deliberately smoothed away to produce a more or less glossy surface, which in some cases at least was covered over with a thin white coating.

As a rule these urns were not circular but more or less oval in circumference.

Some of them are tall and slender like Pl. 143. Skel. 8, pot 2. Others are low and broad with a globular lower half. Some have a narrow mouth like Skel. 8. pot 2, others have a very wide mouth.

In some cases (skel. 6, pot 3) the margin above the lugs is convex, in others the lugs reach to the margin with a concave contour. On urn K 5559, bought near Chin Chow, Liu Shih Li P'u, this feature is so sharply developed that the mouth is saddle-shaped, both between the lugs and over the lugs.

In addition to the saddle-shaped urns there were found at Ssu Wa Shan small Ting tripods (Skel. 1) and Li tripods with bulbous legs (Skel. 8, pot 3).

Small Ting bought at Ssu Wa Shan are shown in text-figure 61. A Li tripod bought at Ssu Wa Shan is shown in Pl. 174, 1.

An armlet of bronze (K 2378: 2) found with Skel. 1. is shown in fig. 62.

The inner end is slightly thickened.

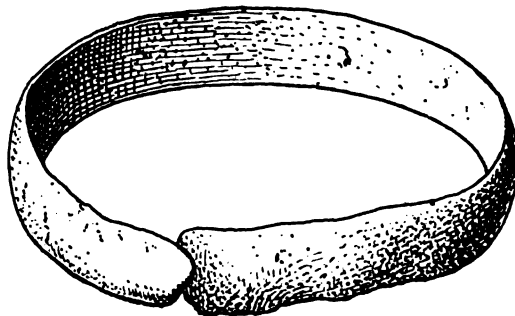


Fig. 62. Armlet of bronze found with Skel. 1 at Ssu Wa Shan. Nat. size.

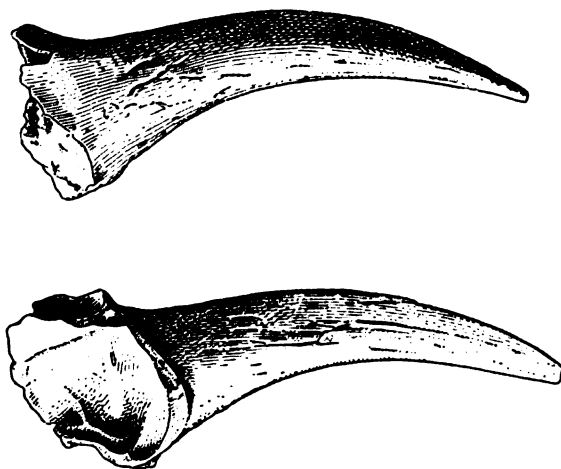


Fig. 63. Goat horns found with Skel. 8, Ssu Wa Shan. Half nat. size.

The perforated axe (K 2045) found with Skel. 1 is reproduced in Pl. 17,3 and described in chapter 6.

Two goat's horns (fig. 63) found with Skel. 8 are, according to Dr. Dahr, probably from a domestic animal.

20.

SITES OF THE CH'IA YAO STAGE.

The Sites at Ch'ia Yao, Hsi Ning Hsien.

Ch'ia Yao is a small hamlet in the side valley of the Hsi Ning Ho main valley, which opens into the latter at Chu Chia Chai. This side valley runs nearly north-south, and Ch'ia Yao is situated 15 li north of Chu Chia Chai on level ground in the middle of the valley. A small brook, a tributary of the stream which, further south, flows past Chu Chia Chai into the Hsi Ning Ho, passes just east of the village of Ch'ia Yao, where it flows in a channel which it has cut down to a depth of some metres. In a NE direction from the village, in the small cliffs, specially on the west side of this stream, there are several exposures of refuse from ancient dwelling-sites. Not far to the west of this stream and in a northerly direction from the village there runs a road which has cut through a ravine of some metres depth with cliffs on both sides showing exposures of ashy earth, in which however very few objects were found.

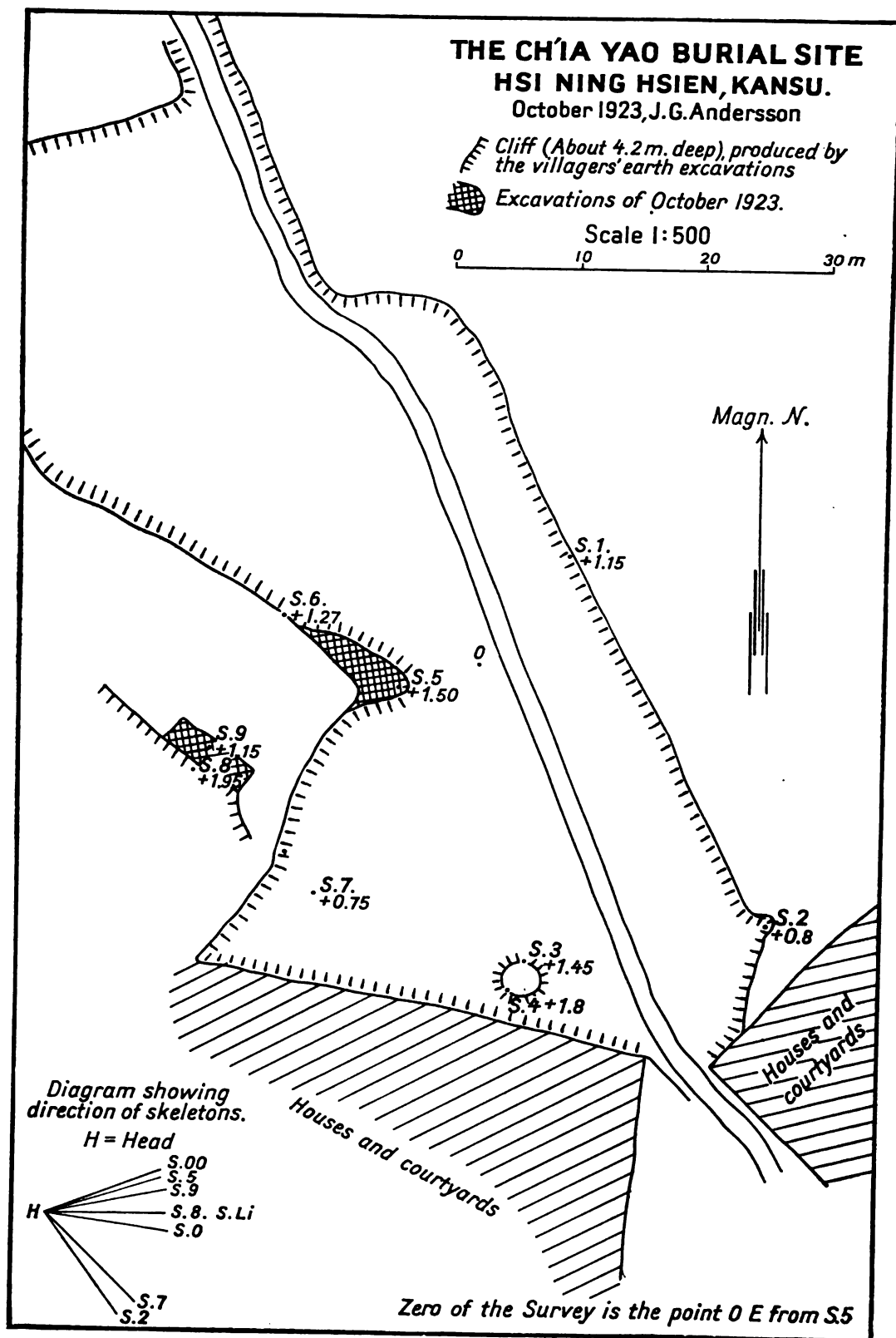


Fig. 64. Map of Ch'ia Yao burial site.

The grave field that will be described here is situated on the NW side of the village as shown in fig. 64. It is bounded on the southeast by the houses of the village, and a road passes through the area in which ancient graves had been noticed by the villagers. On both sides of this road the loess soil had for a number of years been excavated by the villagers for the various purposes which this soil serves in the hands of the farmer. Over an area 90 m. in length and 20—40 m. in width, the soil has been dug away to a depth of about 4,2 m. This large earth excavation area is demarcated on all sides by a vertical cliff, 4,2 m. deep. In this cliff the skeletons 1, 2 and 6 were found. SE from skeleton 6 there used to be, prior to our excavations, a sharp promontory formed by the high ground, in the cliff of which skeletons 0, 00, and 000 were excavated by my collector Chen before I visited the place and began a regular survey of the site. Consequently I have not been able to mark exactly the location of these three skeletons. This projecting tongue of high ground was dug away by us, but the only result was the finding of skeleton 5.

In the southern part of the area excavated by the farmers on the west side of the road, and close to the houses, there is an isolated round pillar in which I discovered and excavated skeletons 3 and 4. This pillar was preserved by the villagers as sacred ground and so I was not allowed to do any more excavating on this promising site.

In the corner, west of the pillar just described, I found a small deposit of dwelling-site refuse containing painted pottery like the Yang Shao type. Near this spot we excavated the very interesting skeleton 7.

West of the big excavation area, and separated from it only by a narrow strip of high ground, there is another place where the earth has been dug away by the villagers. Here, in the cliff, we found some projecting bones (skeleton 8) and, after continued excavation at a lower level, skeleton 9.

At some distance from the grave field here described, one of our men named Li found in a cultivated field close to the NE edge of the village a skeleton, labelled in my notebook as «Skel. Li extra». To judge from the very interesting burial furniture, this skeleton may belong to the same period as the skeletons of the grave field described above.

After these topographical remarks, individual skeletons will now be described.

Skeleton 0. A complete skeleton in a horizontal-dorsal position. Head W 7° N, resting upon left side. A bone disc (K 2408: 1) between the lower part of the legs. Two pots (K 6575, K 6581).

Skeleton 00. The chest, scapulae and humeri in a regular dorsal position. Direction of the body W 20° S (head-end) — E 20° N (foot-end).

Part of the pelvis resting upon lower right half of the chest.

Half a mandible 8 cm. S. from the right scapula.

No trace of the head, but close to its would-be position two pots. (K 6576, K 6580).

HSI NING HSIEN, CH'IA YAO
Scale 1:20

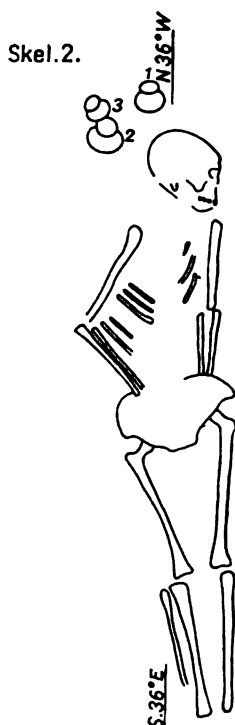


Fig. 65. Ch'ia Yao. Skel. 2.

Skeleton 000. A child's skeleton. No furniture.

Skeleton 1. A few bones, 2 copper objects (K 2390: 4—5) and 3 toes of small ruminant (K 2390: 1—3).

Skeleton 2. Fig. 65 Regular horizontal-dorsal position. Right hand placed above, and the left one below the pelvis. Head resting upon left side. Bottom of pot 1 (K 6577) and 2 (K 6578) level with the centre of the head. Bottom of pot 3 (K 6579) level with highest point of the head.

With this skeleton were also found a sewing needle (K 2407: 5), a spinning whorl of clay (K 2407: 1) and four perforated ruminant toes.

Skeleton 3. On the north side of the «pillar» a large pot (K 6586) with 4 lugs lying on its side. Near this pot some teeth and vertebrae as well as a scapula. Near the mouth of the pot two copper buttons (K 2389: 3—4); also in the earth round the pot numerous very small white beads (K 2389: 6). A bead of turquoise? (K 2389: 5).

Skeleton 4. On the southwestern side of the «pillar» some human bones and with them a pointed bone implement (K 2411: 3) and a perforated, peculiarly shaped tooth (K 2411: 1).

Skeleton 5. Upper part of skeleton (skull and chest) intact. Lower part removed before our arrival.

Horizontal-dorsal position. Head bent upward so that the eye sockets point only 60° above the horizontal. Head W 17° S.

With this skeleton part of a mussel shell.

Skeleton 6. An apparently irregular accumulation of bones, some of which show red pigment on the surface.

Together with these bones three perforated toes (K 2391: 2—4) of ruminants, two of a smaller and one of a larger animal. In addition an object made of a boar's tusk (K 2391: 1) and two small copper objects, so deeply weathered and turned into carbonate that their original shape cannot be ascertained (K 2391: 6).

At 30 cm. horizontal distance from this accumulation of bones were found two perforated stone-implements (K 2388: 1—2), one on the same level as the bones, the other 30 cm. higher.

Skeleton 7. Fig. 66. Incomplete skeleton, direction NW (head-end) — SE. Horizontal-dorsal.

One perforated ruminant toe.

A larger number of small copper objects in several groups from near the chin down to the upper part of the humerus. The position of the different groups of copper objects marked with figures (1—11) in the plan.

1. Groups of small bronze links along vertebral column.
 X_1 3 links (K 2406: 13—15).
 X_2 1 links (K 2406: 16).
 X_3 3 links (K 2406: 17—19).
 Y 3 links (K 2406: 20—22).
 Z 3 links (K 2406: 22 b).
2. Over right humerus:
 6-buttoned bronze object (K 2406: 23).
3. Inside right ulna:
 Bell-shaped bronze (K 2406: 25),
 one perforated phalanx of small ruminant¹) (K 2406: 28).
4. At right hand:
 Folded button (K 2406: 29).
5. Inside left femur:
 3 buttons (K 2406: 35—37).
6. Beneath pelvis:
 4 buttons (K 2406: 38—41).
7. Above 6:
 Button (K 2406: 42).
8. Beneath head (missing):
 Button (K 2406: 43).
9. Over the chest:
 Button (K 2406: 44).
10. Over left forearm:
 2 folded buttons (K 2406: 45—47).
11. Over the waist:
 Two 6-buttoned bronzes (K 2406: 48—49).

Skeleton 8. A skeleton in horizontal-dorsal position. Head west. The head resting on its right side with the face to the south. Mandible about 10 cm. below the skull.

Close to the lower part of the right leg a pot (K 6587) and fragments of at least one other (K 6582) at the feet. Above the head were seen traces of copper objects. 40 cm. below the head a big complete sewing needle of bone (K 2410: 2). Arrow head (K 2410: 1) above the bones.

Skeleton 9. An unusually complete and beautiful skeleton in regular

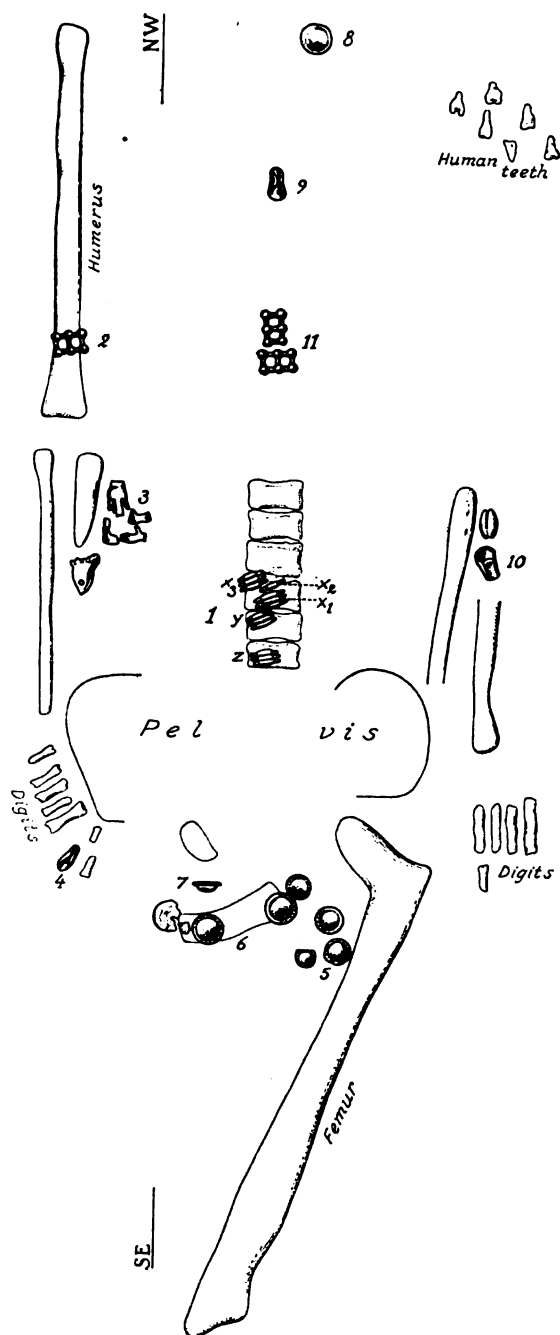


Fig. 66. Ch'ia Yao. Skel. 7. Scale 1: 5. The numbers indicate the bronzes as mentioned in the text.

¹) Small ruminant is in this chapter: probably goat, sheep or antelope.

horizontal-dorsal position. Head W 11° S. A pot (K 6280) (very fragmentary) close to and west of the skull. Another pot (K 6279) at the left foot.

Five perforated ruminant toes (K 2387: 1—5) at the vertebral column and the pelvis.

Skeleton «Li extra». In a cultivated field at the NE corner of the village a skeleton in regular horizontal-dorsal position. Head W. The head is somewhat dislocated with the base turned upwards and the face towards SW.

Above the pelvis a red stone (hematite) (K 2405: 14) and some long bones (K 2405: 10—11), cannon-bone of small ruminant? When these bones were removed, I found, resting upon the left half of the pelvis, two beautiful bone awls (K 2405: 12—13), another smaller piece of hematite (K 2405: 15) and an elongated copper object (K 2405: 2), or group of copper objects, which were preserved in toto.

The vertical position of the skeletons is marked in relation to a zero point (0) close to the west side of the road. The positions of the skeletons above this point were as follows:

	Above Zero	Below Surface
Skeleton 1	1,15 m.	3,05 m.
» 2	0,8 m.	3,4 m.
» 3	1,45 m.	2,75 m.
» 4	1,8 m.	2,4 m.
» 5	1,5 m.	2,93 m.
» 6	0,75 m.	3,45 m.
» 7	1,27 m.	3,45 m.
» 8	1,95 m.	2,25 m.
» 9	1,15 m.	3,05 m.

In the second column I have indicated, under the heading, the depth of each skeleton below the original land surface before the villagers began their loess excavation. It will be seen from this column that the depth varies between 2,25 m. and 3,45 m. To judge from our experience of other burial sites, it is unlikely that the burials were made at such a depth. It seems far more probable that about two metres' thickness of earth has been spread over the ancient burial ground, probably through the farmers laying out the area for horizontal cultivation in comparatively recent times.

Site at Hsia Hsi Ho, Hsi Ning Hsien.

Hsia Hsi Ho is a village in the same valley as Ch'ia Yao and situated just NW from Ch'ia Yao on the west side of the valley. West of Hsia Hsi Ho village flows the main stream of this valley. NE from the village and at the E bank of the river we found some small exposures of a dwelling-site deposit, from which a small collection was made.

Hsia Hsi Ho village consists of two groups of houses, one northern, one southern. On the west side of a road near the northern group of houses some pots were found

in the wall of the road ravine and in a place by the road where loess soil had been excavated by the farmers. We noticed two skeletons partly projecting from the cliff. We excavated them, but the burials yielded no furniture. The head of one skeleton was $W\ 20^{\circ}\ N$, the other $N\ 38^{\circ}\ W$. The former skeleton lay at a depth of 1,4 m. below the surface, the second at a depth of 2,3 m. To judge from these facts they might be of the same age as the Ch'ia Yao grave field; indeed, this seems to be the case with the skeletons discovered in the centre of Hsia Hsi Ho village and described in the following paragraphs.

At a road connecting the two groups of houses of Hsia Hsi Ho village some skeletons were found.

In a cliff formed by the villagers' loess excavation one of my men named Li discovered and excavated some skeletons. The place is named after him in my notes »Li digging-place«. Here were found the following burials:

Skeleton 1. Head preserved. A pointed bone object (K 2404: 2—3), a ruminant's toe (K 2404: 4) and a large copper button (K 2404: 1), one pot (K 6284).

Skeleton 2. Without trace of the head. A large tubular bone object (K 2403).

Skeleton 3. No trace of the head. Two ruminant toes (K 2402: 1—2).

Skeleton 4. Irregular accumulation of human bones. 3 beads of various kinds, a dark object, and two copper-carbonate spots (K 2401).

In a cultivated field on the east side of the said road my collector Chuang excavated a group with interesting copper objects. This skeleton was marked »Chuang Skel.« (Fig. 67).

The bones were found at a depth of 80 cm. below the surface. The plan shows only part of the bones actually collected. After I had drawn the plan and left for other

work, Chuang found more bones NW of those shown in the plan. It was with these last-discovered bones that the copper »razor« mentioned below was found. The position of some of the artifacts is denoted by numbers 1—4 in the plan. The following objects were found: two ruminant toes (K 2397: 2—3), a turquoise (?) bead (K 2397: 1), a conical copper button (K 2399: 1), a funnel-shaped copper object (K 2399: 4) with three triangular holes in the side wall, a rectangular copper object (K 2399: 2) and a »razor« (K 2399: 3) of copper and another copper object.

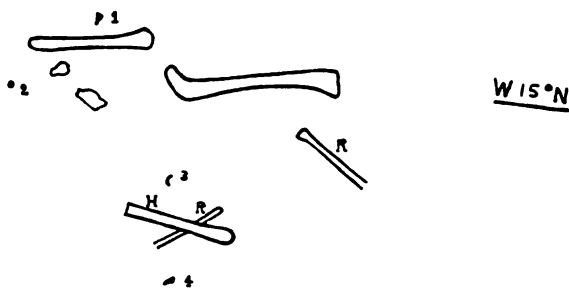


Fig. 67. Plan of »Chuang Skel.« Hsia Hsi Ho.
Scale 1: 20.

Mortuary furniture of the Ch'ia Yao and Hsia Hsi Ho sites.

Pottery.

Pl. 144 Ch'ia Yao. Sk. 8 (K 6587) Ware light brick-red. Thickness of wall 5—6 mm. Surface smooth, polished. Colour variegated red-yellow-grey. Vessel with two pairs of lugs, two small cylindrical ones at the equator and two high ones reaching from the rim of the collar to outside the base of the collar. Seen from the side, the mouth is very slightly saddle-shaped.

Height 222 mm. Diam. 205 mm.

Pl. 144 Ch'ia Yao. Sk. 3 (K 6586).

Thickness of wall 8—10 mm. Surface smooth. Colour variegated, yellow-red.

Urn with two pairs of lugs. Two low, cylindrical ones at the equator and two high ones connecting the rim with the base of the collar. Bottom distinctly marked and concave as seen from below.

Height 258 mm. Diam. 184 mm.

Pl. 144 Ch'ia Yao. Sk. 00 (K 6580).

Ware and surface dark grey. Surface only locally smoothened, mostly rough. High lugs reaching from the rim to the base of the collar. On uppermost part of the lugs two small pits. Neck unusually high.

Height 143 mm. Diam. 127 mm.

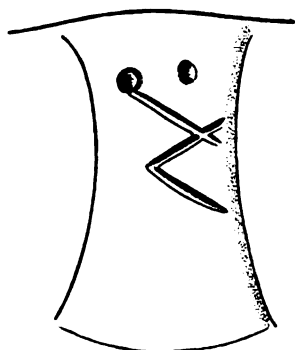


Fig. 68. Decor of lug
K 6287.

Pl. 144 Hsia Hsi Ho (K 6287) «Policeman's pot».

Ware brick-red with grey interspaces. Surface variegated, grey-reddish-brown. Lugs reaching from rim to the base of the high collar. Both lugs with two pits in the upper part. One lug with an incised crisscross mark beneath the pits (fig. 68).

Height 144 mm. Diam. 129 mm.

Pl. 144 Ch'ia Yao. Sk. 9. Head (K 6280).

Ware grey. Wall 5—7 mm. thick. Surface grey and smooth. Mouth, as viewed from the side, slightly saddle-shaped. Lugs high, reaching from rim to base of collar.

Bottom slightly set off and hollowed underneath.

Height 144 mm. Diam. 132 mm.

Pl. 144 Ch'ia Yao. Sk. 9. Feet (K 6279).

Ware grey. Surface grey and smooth. Thickness of wall 4—5 mm. Lugs like preceding ones. Bottom level underneath.

Height 142 mm. Diam. 128 mm.

Pl. 144 Ch'ia Yao. Sk. 2. Pot. 1 (K 6577).

Ware dark grey. Surface also dark grey, slightly smoothened. Mouth saddle-shaped. Each of the two big lugs have two deep pits in the upper part. Bottom flat.

Height 152 mm. Diam. 145 mm.

Pl. 144 Ch'ia Yao. Sk. 0 (K 6581).

Grey ware and surface. Part of the surface has a reddish tinge. The body has a slightly angular profile. Bottom flat. Mouth distinctly saddle-shaped. The remaining lug has a single deep pit in the upper part.

Height 157 mm. Diam. 159 mm.

Pl. 144 Hsia Hsi Ho. 1 li NW near river (K 6281).

Grey ware. Surface grey and smooth. Mouth saddle-shaped. Bottom well-marked and hollowed underneath.

Height 126 mm. Diam. 123 mm.

Pl. 144 Hsia Hsi Ho. Sk. 1 (K 6284).

Ware reddish-brown with black spots. Thickness of wall 6—10 mm.

Urn with wide mouth and low collar. Lower part of outer surface very rough. Upper half with a diagonal cross-line pattern which shows a shiny surface.

Mouth slightly flaring. Only one lug preserved. At its top a transverse indented ridge. Probably another lug on the other side. On the side-wall half way between the lugs, on each side is a knob. Bottom slightly hollowed.

Height 141 mm. Diam. 160 mm.

Pl. 144 Ch'ia Yao. Sk. 8 (K 6582).

Ware brownish-grey. Surface dark grey. The lugs have in their upper part a transverse indented ridge. One has three deep pits near the base. Bottom slightly hollowed. On the side wall midway between the lugs are two knobs.

Height 136 mm. Diam. 146 mm.

Pl. 144 Ch'ia Yao. Sk. 2 pot 3 (K 6579).

Ware greyish-brown. Surface very rough except the uppermost part and the collar, which are smoothened. Lugs with transverse ridge near the top. Two knobs on the side-wall.

Height 110 mm. Diam. 130 mm.

Pl. 144 Ch'ia Yao. Sk. 0 (K 6575).

Ware greyish-red with dark spots. Uppermost part of side-wall has an almost vertical linear pattern (mat impression?). The two lugs have an indented transverse ridge near the top. High up on the side-wall midway between the lugs on one side is a knob.

Height 126 mm. Diam. 130 mm.

Pl. 144 Ch'ia Yao. Sk. 00 (K 6576).

Small but unusually high and slender urn.

Ware brown. Surface very irregular and rough. Lugs with transverse ridges which are not indented. On the side-wall, knobs midway between the lugs. Bottom smooth.

Height 120 mm. Diam. 102 mm.

Pl. 144 Ch'ia Yao. Sk. 2 pot 2 (K 6578).

Ware grey-brown. Thickness of wall 5—6 mm. Lower part of side-wall very rough and rugged. Upper part smooth, passing gently into the equally smooth collar. Small cylindrical lugs below base of collar. Bottom deeply hollowed.

Height 107 mm. Diam. 126 mm.

Objects of stone, bone and bronze.

Stone objects.

Pl. 146,17—18 (K 2388: 1—2) Perforated stone objects found in the earth near Sk. 6. Both seem to be reshaped or rather disfigured stone axes, which have been cut off at both ends.

K 2388: 1 has a nicely polished surface, but the cut-off ends are rather rough.

Pl. 146,10—11 (K 2405: 14—15) Ch'ia Yao. Sk. »Li extra». In the pelvic region. Angular pieces of fibrous hematite.

Bone objects.

Toes of small ruminants. A peculiar feature of the funeral customs of these two burial grounds is the very frequent occurrence of perforated phalanges of small ruminants in these burials. We have found these objects distributed as follows:

Ch'ia Yao.

Skeleton 1	.....	3 toes
» 2	.....	4 »
» 6	.....	3 »
» 7	.....	1 (+ 2) toes
» 9	.....	5 toes

Hsia Hsi Ho.

Skeleton 1	.....	1 toe
» 3	.....	2 toes
»Chuang sk.»	.....	2 »

According to Dr Dahr these phalanges belong to small ruminants, probably goat, sheep or antelope.

Three groups of these artiodactyl toes are reproduced in
 Pl. 146,13, 14, 20 (K 2391: 2—4) Ch'ia Yao. Sk. 6.
 Pl. 146,19, 16, 21 (K 2387: 2, 4, 5) Ch'ia Yao. Sk. 9.
 Pl. 146,22, 23 (K 2397: 2—3) Hsia Hsi Ho. Skel. Chuang.

Bone objects in burial Ch'ia Yao »Li extra.»

In this interesting burial there were found, together with two pieces of hematite and a bronze object, two bone awls Pl. 146,2, 4.

(Pl. 146,1) Besides these two bone instruments there was a cannon bone of a small ruminant according to Dr. Dahr. This bone had been carefully split. In addition there were 7 more split long bones, and it looks as if the mourners had deposited these split bones in order to give the deceased the treasured marrow as food.

Pl. 145,23 (K 2408: 1) Ch'ia Yao. Skel. 0. A thin perforated bone disc, 71 mm. in diam.

Pl. 146,5 (K 2411: 3) Fragment of a bone awl and (K 2411: 1) a perforated, much worn tooth of indeterminable species from Ch'ia Yao. Skel. 4.

Pl. 145,13 (K 2391: 1) Ch'ia Yao. Skel. 6. Section of a boar's tusk.

Pl. 146,6, 7 (K 2410: 1) Fragmentary bone arrow point and (K 2410: 2) complete bone sewing needle, both from Ch'ia Yao. Sk. 8.

Pl. 146,8 (K 2403) Hsia Hsi Ho. Li. Skel. 2. Tubular object cut from a very thin hollow bone. Length 90 mm.

Pl. 146,3 (K 2404: 2) Hsia Hsi Ho Li. Skel. 1. Small bone awl.

Bronze objects.

Buttons.

These are the most common bronze objects and they occur in five of the graves.

Pl. 145,17, 22 (K 2406: 38, 39) Both from Ch'ia Yao. Skel. 7: the first one a small (17 mm) button with smooth thickened margin and the second a larger button (23 mm) with minute knobs all along the thickened margin. There are also small buttons (18 mm.) with knobs along the margin.

At Ch'ia Yao there are 2 buttons with Skel. 3 and 10 buttons with Skel. 7 (not counting the folded buttons which will be described later).

At Hsia Hsi Ho only two buttons were found.

In »Li Skel. 1» was found the giant button Pl. 145,15 which was about 32 mm. in diam. In »Chuang Skel.» was found the fine conical button (K 2399: 1), shown in fig. 69.



Fig. 69. Bronze button, K 2399: 1.

Folded buttons.

In two of the Ch'ia Yao graves there occur a peculiar kind of buttons which have been folded, so that they are more or less cylindrical or mostly conical (Pl. 145, 10, 11, 14). Of these folded buttons there are 4 in Skel. 7 and 2 in Skel. 1. Probably they were disfigured to serve as »Ming ch'i», intended for the dead, but then it is noteworthy that with Skel. 7 there were 10 normal and 4 folded buttons occurring together.

Links.

With Ch'ia Yao, Skel. 7, along the vertebral column, there were 13 small links of the type shown in Pl. 145,16. It should be noted that these links are slightly asymmetrical, with one side strongly convex and the other nearly straight, the latter showing 2—4 transverse lines.

Openwork funnels.

At Hsia Hsi Ho I bought from a villager a small funnel-shaped object perforated at the top and with 3 triangular windows on the side-wall Pl. 145,2 (K 2398: 2).

Later we found with Skel. Chuang another specimen Pl. 145,3 (K 2399: 4) very like the first one but with wider and more regular windows.

Finally we found inside the right fore-arm of Chia Yao. Skel. 7 a somewhat similar object but much heavier, specially at the top. Pl. 145,1 (K 2406: 26).

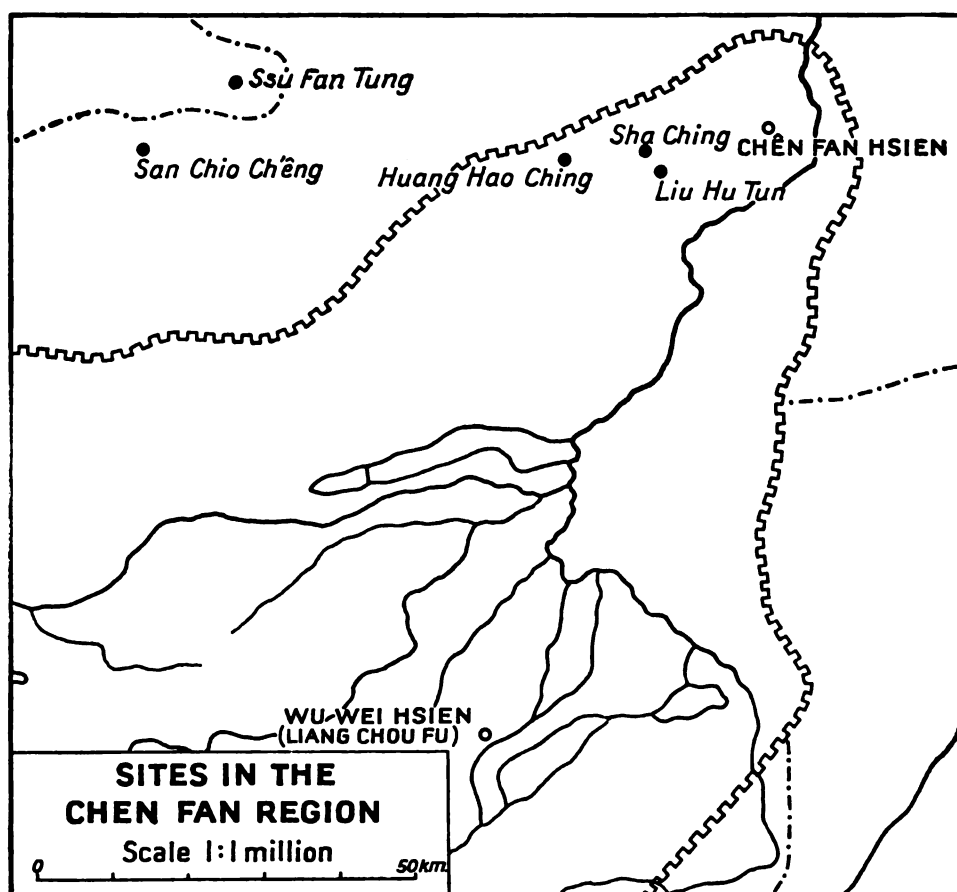


Fig. 70. Sites in the Chen Fan region.

Rectangular objects.

Rectangular object, Pl. 145,12 (K 2399: 2). Small bronze with a double frame, circumscribing in each half 4 knobs.

3 objects consisting of six confluent knobs Pl. 145,4 a, b, c. (K 2406: 23, 48, 49). The underside of these bronzes is quite flat. The three specimens all belong to Ch'ia Yao, Skel. 7.

Knife.

A minute knife of the type often called «razor» Pl. 145,6 (K 2399: 3) Hsia Hsi Ho. Skel. Chuang.

Aggregate of bronzes Pl. 145,20 (K 2405: 2). At first this specimen looked like a much-corroded buckle, but on closer examination it is most likely an aggregate of three bronzes, one spike-shaped, the two others flat and broad.

In the pelvic region of Hsia Hsi Ho, Skel. Chuang.

Miscellaneous objects.

Spinning whorl of clay Pl. 145,19 (K 2407: 1) Ch'ia Yao Skel. 2.

Beads from Ch'ia Yao Skel. 3. Pl. 145,5, 9 (K 2389: 6, 7).

K 2389: 7 Bean-shaped turquoise bead.

K 2389: 6 very minute white beads.

Beads from Hsia Hsi Ho. Li Skel. 4. Pl. 145,7, 8 (K 2401). Complete and one half turquoise bead and one small white bead.

Bead from Hsia Hsi Ho, Skel. Chuang (K 2397: 1).

Very much decayed turquoise bead.

21.

THE SHA CHING SITES.

From the Nan Shan alps a number of rivers flow down into the western part of the Gobi desert. Furthest to the W, and at the same time the largest and historically the most important, is the Etsingol, along which are a large number of sites from historical periods, sites that have been explored by Kozloff, Stein and, more recently, by the Hedin Expedition (The Sino-Swedish Expedition of 1927—33).

Probably second in size and importance is the river which, after passing the Chen Fan oasis, flows into the desert, there to lose itself in one or more salt lakes. The important city of Liang Chou (Wu Wei Hsien) is located upon the alluvial fan belt built up by the several Nan Shan streams that unite below Liang Chou to form the Chen Fan river.

The distance from Liang Chou to Chen Fan is approximately 90 km. The edge of the desert is reached 25 km. from Liang Chou. From there the desert is nearly everywhere visible to the E, though westward also there are vast expanses of low desert and entirely barren hills. Here and there along the river are irrigation canals, cultivated fields and houses. Moreover not far from Chen Fan there lies along the river a vast expanse of pasture ground. However, the proximity of the desert is felt everywhere, and it is safe to say that from 25 km. below Liang Chou the road passes through a region of prevailing desert where the river has only locally given rise to pasture land or irrigated fields.

Round Chen Fan city a flourishing oasis provides sustenance for a large population. As I stayed nearly all the time at Sha Ching, outside the oasis, I was not able to trace the topographical features which have here, along the course of a desert river, caused a flourishing community to spring up out of a desert region. However, when travelling from Sha Ching to Chen Fan city I

passed through mile after mile of beautifully cultivated fields framed in by lofty trees and yielding the various splendid harvests which in these tracts grow easily in the desert soil when it is fully irrigated.

The fact that the Great Wall (or rather the line of watch- and defence-towers which here in the west represents the Great Wall) encircles the Chen Fan oasis proves that the fertility of this area was already fully recognized in early historical time. The archaeological sites which we shall describe below prove that prehistoric Man was once settled in the area.

In 1923 my collector Pai, when travelling in the Liang Chou area, heard of pottery and other finds made in the desert near the Chen Fan oasis. He went to the place in question, a hamlet named Sha Ching, and made very important finds. The following summer, 1924, I spent the period from August 8th to Sept. 6th exploring this area. We then extended our work westwards into Yung Chang Hsien to the walled-in place San Chio Cheng.

As the finds round Sha Ching give a full representation of the Sha Ching stage, the sites further west, Huang Hao Ching and San Chio Cheng are here left out of consideration. They will be fully described in the coming monograph on the Chen Fan area.

When we arrived in the Chen Fan region in 1924, without entering the oasis we went directly to Sha Ching, a tiny hamlet located 30 li W from the Hsien city. Round this village bare desert prevails in every direction. An entirely flat surface of light-grey clay is covered with wandering sand-dunes, 10—15 m. high. At Sha Ching village well-water is the only substance available capable of supporting human or animal life. All foodstuff is carted out to Sha Ching from the oasis, and the only means of existence for the poor hamlet is to serve as a resting station for carts bringing in salt from a salt lake further out in the desert.

Archaeological finds were made in three directions from the village of Sha Ching: N—NW 3 li, two small finds. E 5—6 li, finds of important bronzes etc. S. 5 li, the in every way most important finds, see map fig. 71.

The map shows the typical topography of the Sha Ching area: a plain of grey sandy clay over which sand-dunes, 10—13 m. high, wander from NW to SE.

When studying the map it should be borne in mind that it represents the situation as it was in August 1924. Now the picture will certainly have changed. Possibly the grave-field lies buried under the big dune marked 9,3. Many of the hut ruins seen by me may be hidden and others have become exposed.

Within this small area of 800×550 m. we meet a very rare and for our research exceptionally fortunate situation; three distinct stages of the past are here represented by very characteristic remains which are not hidden in the depths of successive strata but lying exposed near the surface, each in its own well-defined area.

The most recent of these deposits is a tiny hill (40 m. in diam. and a few m. high) located in the E part of the map, 100 m. south of the Liu Hu T'un fort,

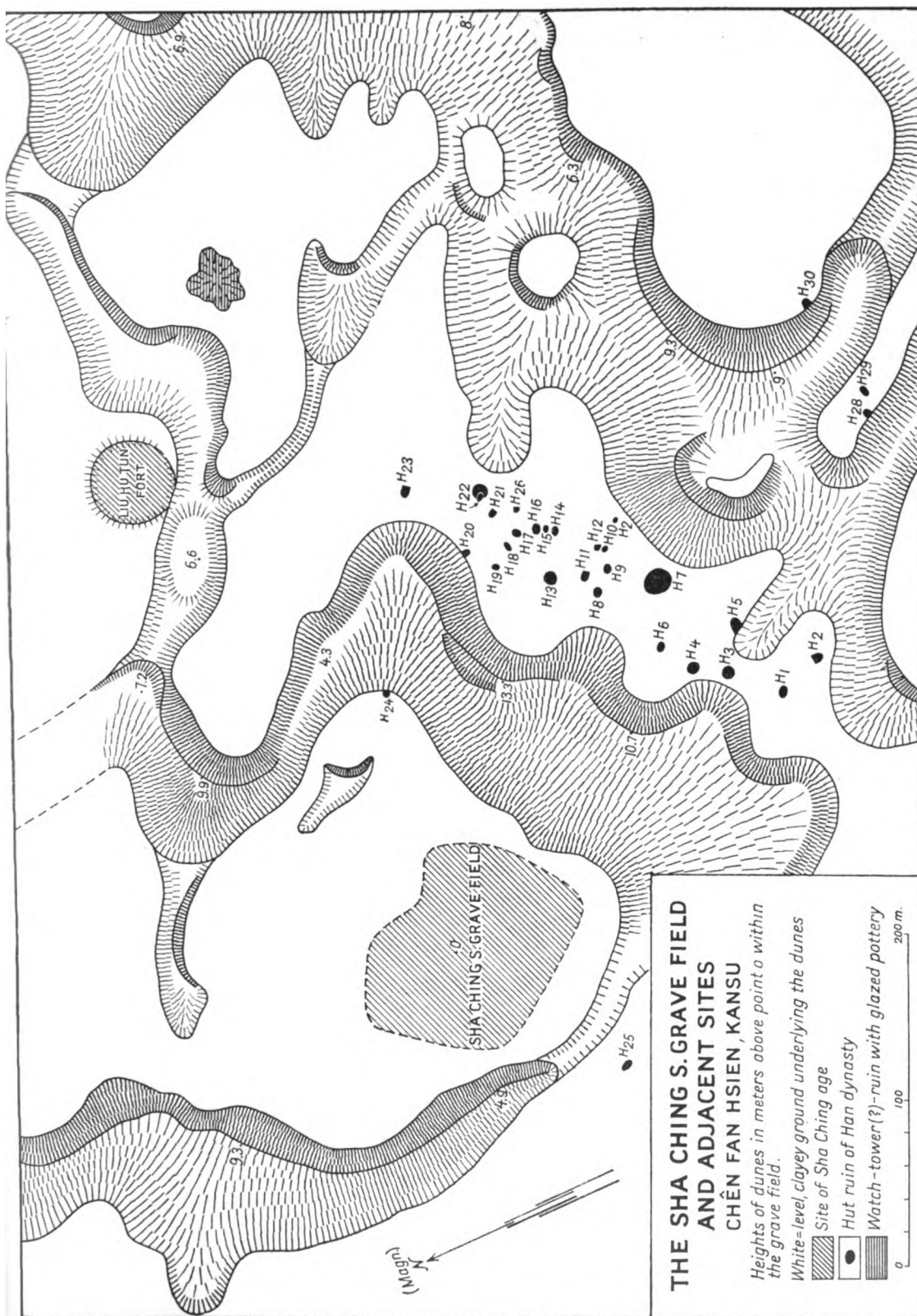


Fig. 71. The Sha Ching S. sites.

(this deposit is denoted with horizontal lines). Most probably this is all that remains of a small, entirely decayed watch-tower. The place is marked by the abundance of sherds of glazed crockery, which is hardly seen anywhere else. I hazard a guess that the tower?-ruin cannot be older than the Sung dynasty, say 1000 A. D.

The next older remains is a number of — mostly small — hut ruins, marked in black and numbered (1—30). These small huts were built of burnt bricks. Many of these bricks (grey or rose-red) are probably made of the local gritty clay. They are light and not very resistant, so that they were subjected to strong wind erosion caused by the blowing sand Pl. 154, 5—7.

But in these hut-ruins there is also another type of brick, a heavy, dark, often nearly black *slag*-brick. It is not only at the hut ruins that these dark slag-bricks occur. They are widely scattered over the flat ground in this region. When travelling westwards from Sha Ching past Huang Ho Ching I saw these bricks in thousands where we rode through the desert. It will be an important task for future explorers to trace these bricks to their origin and identify the kind of metallurgical industry from which they were derived. Pl. 154,4 shows in half natural size a fragment, about 1/4, of such a slag-brick, 4 cm. thick. The fragment of another brick is 5 cm. thick. The finds from these hut ruins (together with similar finds from Huang Hao Ching and Ssu Fan Tung) will be described in the monograph on the desert finds. For the present it will suffice to mention the following three elements among the hut-ruin finds:

1. Fragments of typical Han pottery, mostly of light-grey ware.
2. Wu-shu coins.
3. Rusty pieces of iron, for the most part highly decomposed.

On account of these finds the hut-ruins may safely be assigned to the Han dynasty.

We now, finally, arrive at the third and oldest of the Sha Ching find groups: The Liu Hu T'un fort and the Sha Ching S. grave field, which together constitute the Sha Ching stage.

On the map the Liu Hu T'un fort is near the upper margin, and the grave field is in the western half of the map.

The Liu Hu T'un fort.

This is a circular construction, 50 m. in diam. (Pl. 3 A). The wall was built of clay, apparently taken from the surrounding level clay ground. It is evident that this loose mud wall has in the course of time crumbled away, and the mud has gradually spread out to form a gentle slope, which gives hardly any idea of the appearance of this fortification at the time when it was in use more than two millenniums ago.

Fig. 72 shows a section, which I surveyed, through the fort and its surroundings. To the extreme left is seen the level clay ground, then follows the gently rising northern exterior of the mud wall. Inside the enclosure the ground is 1,5 m. higher than it is outside, certainly due largely to filling, intentional and otherwise, during the building of the fort and the time when it was in use. Nearest to the circular wall is a gentle slope just as on the outside, probably indicating that a mud-flow occurred from the wall on the inside as well.

In the sectional line two test diggings were undertaken. One near the wall went down 2,2 m. in more or less sandy clay, which to a depth of 1,7 m. contained pottery of Sha Ching type and pieces of charcoal. The lowest 0,5 m. was barren.



Fig. 72. Section through the Liu Hu T'un fort.

The second test pit was dug in the centre, to a depth of 1,4 m. in entirely barren, slightly sandy brownish clay. 0,5 m. below the surface there were two dark-coloured bands, each about 2 cm. thick, the one 8 cm. above the other; the lower one was the more persistent. It should be emphasized that all this digging in the central part of the fort yielded absolutely nothing. This barrenness stands in sharp contrast to the abundant finds made when excavating close inside the wall. This indication of a barren area in the centre of the fort coincides in a striking manner with the exactly similar conditions indicated still more clearly by the large and more strongly built San Chio Ch'eng fort in Yung Ch'ang Hsien, 70 km. W of Sha Ching.

It may be worth mentioning that on the level clay flat N of the fort I collected in the sandy clay numerous small freshwater shells.

Finds in the Liu Hu T'un fort.

Pottery.

The very first to be reckoned among these finds is the giant tripod K 6559, Pl. 175—176, described in our 25th chapter. This remarkable reconstruction was sent to China in 1932, but another specimen, K 6560, is kept in this museum.

Two smaller tripods, K 6561 and K 6558, have been reconstructed from sherds from Liu Hu T'un. It is stated that they were all found in the *hei t'u*, the black earth characteristic of the dwelling sites.

These tripods consist of the same brick-red gritty ware as all other Sha Ching ceramics. But they are blackened on the outside, probably owing to their having been used for cooking.

Pl. 155,1 (K 3202) Fragments of a bowl-shaped vessel. Ware the usual brick-red of the Sha Ching stage with plentiful quartz grains. Wall 7—8 mm. Along the fractures

pairs of cylindrical holes showing that the vessel had already been broken and repaired in Sha Ching time.

Indications in the bottom that the vessel may have had a foot like that of Pl. 158,6.

Pl. 155,2 (K 2271) Fragment of a vessel like the preceding one, provided with a short triangular handle, which is perforated at the base.

Pl. 153,1 (K 6557) Pai 1923. Inside wall.

High bowl with short triangular handle.

Height 77 mm. Diam. 138 mm.

Stone.

Pl. 155,5 (K 2457: 4) Slightly broken steatite pan. Sooty on the outside. Probably found within the fort wall.

Bone.

Pl. 155,4 (K 2327: 13) Inside the wall at a depth of 0,3 m.

Cylindrical bone instrument, well smoothened by long wear. A large transverse oval hole. Round the edges of this hole marks of the teeth of some small rodent.

Pl. 155,6—7, 9 (K 2327: 7, 8, 9) Inside the wall, 0,2 m. deep. Sewing needles.

Pl. 155,11—13 (K 2348: 4, 2327: 2, 2327: 3) Inside the wall 0,5 m. deep.

Bone arrows, triangular in cross-section, with a deep cylindrical hole for inserting the shaft.

Metal objects.

Pl. 155,3 (K 2327: 1) Inside the wall 0,5 m. deep.

Bronze knife with a hole through upper end of the handle. Very much decayed. Length 115 mm.

Pl. 155,14 (K 2327: 4) Inside wall, 0,5 m. deep.

Bronze arrow-head, triangular in cross-section. With 14 mm. tang. Total length 41 mm.

Pl. 155,8 Small, completely decayed bronze object.

Pl. 155,10 (K 2327: 11) Inside wall, 0,2 m. deep.

Short gold wire, bent into the shape of a horse-shoe.

The Sha Ching S. grave field.

260 m. to the west of the Lui Hu T'un fort lies the Sha Ching S. grave field, covering an area of 150 m. in length and 130 m. in width. This gives for this grave field an approximate area of 19,500 sq. m. as compared with the 3,500 sq. metres of the Liu Hu T'un fort. I mention these two figures side by side because there is hardly any doubt that the people living in the fort buried their dead in this grave field, and the cemetery seems surprisingly large when compared with the narrow space of the fort.

THE SHA CHING S. GRAVE FIELD
CHEN FAN HSIEN

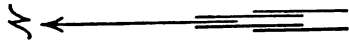
KANSU.

Excavation of August 1924.
J. G. Andersson.

Numbers indicate excavation
numbers of skeletons.

P = pole of polar coordinates.
15 = Skeleton.

Scale 1:500



15

P

43 47
31 44
46 42
48
24

13

20

19

23

35 34 41
26 27
33 30 22 18
28 25 21
40 39
51 50
49 45
52

14

38 37 32 29

17

11

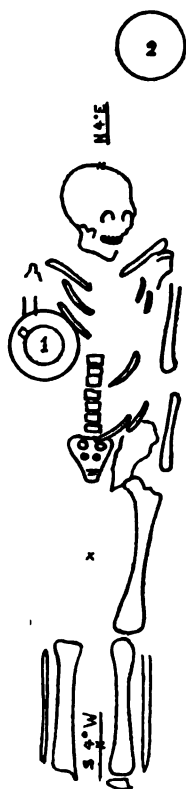
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10

12

Fig. 73. Map of Sha Ching S. grave-field.

Skel. 26.



Skel. 30.

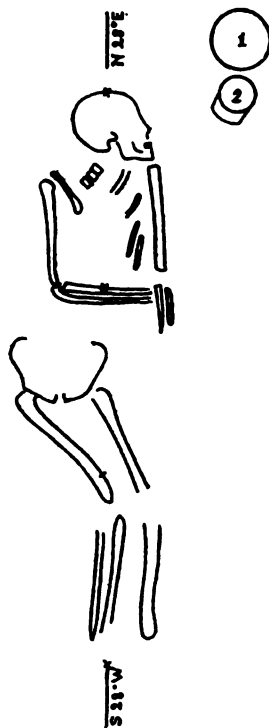


Fig. 74. Two burials of Sha Ching S. grave-field. Scale 1: 20.

There was no surface indication of tombs at this place, except the fact that the local population had noticed that human bones, carnelian beads, cowrie shells and small bronzes came to light within this area when the rare but violent rains and persistent winds had swept the barren clay surface. It was this fact that had been reported to Pai in 1923 and brought to our knowledge a desert culture abounding in enigmatical features.

Pl. 154, 1—3 are specimens selected from the surface of the soil within the grave field. 1 and 2 show two cowrie shells visible at the surface. 3 shows a piece of human bone and two carnelian beads.

In addition to the burials excavated by Pai in 1923 we excavated in 1924 a further 44 skeletons with their furniture. These are recorded on the map fig. 73. When only a head or other small part of the skeleton was found, this was denoted only by a dot. When the whole skeleton was found it was marked like a pin, the dot indicating the head and the line the direction of the body. In this way it becomes visible from the map how regularly these burials had the heads turned to the N.

Fig. 74 shows two individual burials.

Only a selection of the rich burial furniture is described here.

Pottery.

Pl. 153, 2 (K 6211) Skel. 53, pot. 1.

Cylindrical vessel with the rim slightly bent outwards. One lug.

This and the following vessel give the impression of being copied in clay from a prototype cut in wood.

The brick-red ware coarse and the vessel rather irregular.

Height 173 mm. Diam. 115 mm.

Pl. 153,3⁻ (K 5432) Skel. 49.

Very coarse brick-red ware. Nearly cylindrical but slightly narrower in the upper part. Two narrow lugs.

Height 152 mm. Diam. 136 mm.

Pl. 152,1 (K 6087) Urn with two rudimentary lugs. Surface in lower part light grey. Upper part covered with a violet-red slip. Bottom only slightly flattened. Height 148 mm. Diam. 124 mm.

Pl. 152,2 (K 5596) Skel. 34.

In shape like the preceding one but higher, with more distinct collar and larger lugs. Broader flat bottom. Ware brick-red, in upper part covered by reddish violet slip.

Height 223 mm. Diam. 161 mm.

Pl. 151,1 (K 5588) Skel. 39, pot .1.

Ware very coarse and gritty, brick-red.

Two lugs connected by a band of garlands.

Height 164 mm. Diam. 180 mm.

Pl. 151,2 (K 5597) Pai 1923.

Ware very gritty but the vessel carefully made. Two lugs, 55 mm. broad. A knob halfway between the bases of the lugs. The rounded bottom showing irregular cloth-like pattern. Upper half of vessel covered with a violet-red slip.

Height 223 mm. Diam. 279 mm.

Pl. 150,2 (K 6176) This vessel did not come from the southern grave field but from the eastern burial place, where Pai found it in 1923 (Pai Skel. 4). It is here reproduced in comparison with Pl. 151,2 in order to show the similarity of the two grave-fields.

This urn, which was built up from a large number of small fragments, is in all essentials like Pl. 151,2, except that the lugs are slightly more open.

Height 220 mm. Diam. 260 mm.

Pl. 150,1 (K 5598) Pai 1923.

This is one of our finest Sha Ching specimens and has already been reproduced in »Prelim. report» of 1925 Pl. XI,1.

The ware is the usual gritty brick-red material. The shape is like that of Pl. 150,2 but higher and more ovoid. Traces of cloth design over the rounded bottom.

The belt below the lugs covered with a brownish red slip. The same pigment is used for the design painted on the upper zone from the base of the lugs to the rim of the vessel. The design is shown both in Pl. 150,1 and in Fig. 75 K 5598.

Height 233 mm. Diam. 223 mm.

Pl. 149,2 (K 5603) Pai 1923.

This is an urn with one very big lug (length 160 mm, 65 mm. broad). Opposite the lug a knob, triangular and horizontally placed.

Cloth impression on the flat bottom. Lower two thirds of the outside covered with violet-red slip. Collar and lug painted with same pigment in a design of alternating standing and hanging triangles. The design also shown by Fig. 75, K 5603.

Height 225 mm. Diam. 191 mm.

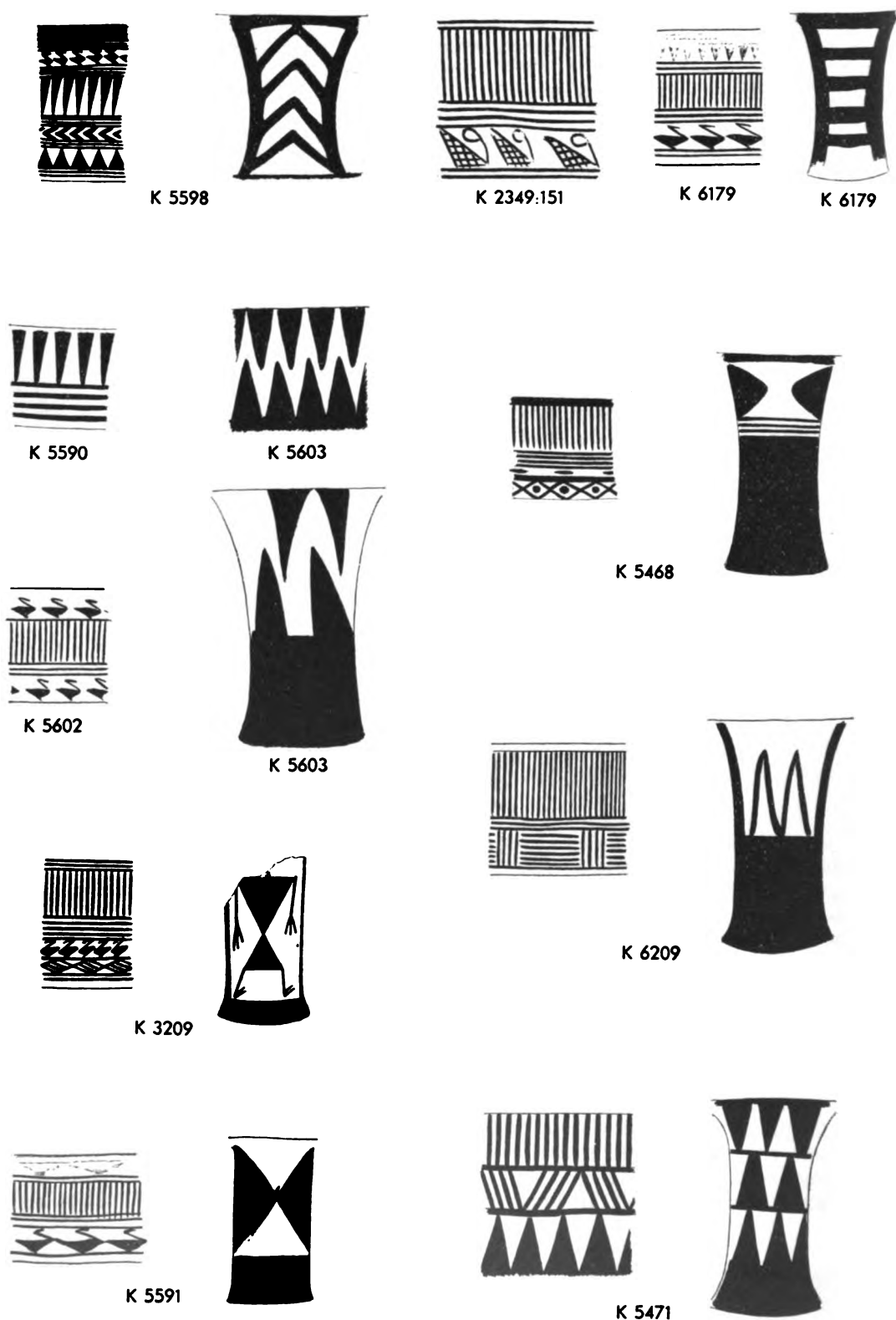


Fig. 75. Painted decor of Sha Ching urns.

Pl. 149,1 (K 5470) Skel. 13.

Vessel like Pl. 149,2 in shape but no knob opposite the lug. Here the upper part is covered with a slip and the lower half painted in vertical bands in the same red pigment. Two or more horizontal red bands over the lug.

Pl. 148,1 (K 5468) Skel. 21.

Urn with very big lug (length 120 mm., width 45 mm.). Some cloth-impressions on the slightly concave bottom. Lower two-thirds covered with brownish red slip. Same pigment used for decor of upper third (see also fig. 75 K 5468).

Height 171 mm. Diam. 144 mm.

Pl. 148,2 (K 5471) Skel. 43.

Cloth-impression on the concave bottom. Lower half with brown slip. Same pigment used for decor of upper half (see fig. 75 K 5471).

Height 194 mm. Diam. 172 mm.

Pl. 147,3 (K 5591) Skel. 36.

Urn of same shape as Pl. 148. Brown slip over lower half. Upper half painted with same pigment (see fig. 75, K 5591).

Height 146 mm. Diam. 122 mm.

Pl. 147,4 (K 6179) Pai 1923. Skel. 3.

Urn like the preceding one in shape, slip and decor (fig. 75 K 6179).

Height 140 mm. Diam. 126 mm.

K 2349: 151 Skel. 52. In shape like the preceding ones but with a somewhat different decor (fig. 75 K 2349: 151).

K 3209. Pai 1923.

Larger urn of same shape as the preceding ones. (Diam. 166). Interesting decor, note especially the human figure on the lug (fig. 75 K 3209).

Pl. 147,1 (K 5605) Skel. 30, pot. 2.

A vessel in shape related to the preceding ones but more like a jug, with nearly cylindrical body. Over the whole body a cross mark.

Height 128 mm. Diam. 93 mm.

Pl. 147,2 (K 5524) Skel. 51.

In shape like the preceding one but more bulging and consequently slightly narrower than the two lower vessels of Pl. 147. Entire vessel covered with red slip.

Height 129 mm. Diam. 104 mm.

K 5590 Pai 1923.

Urn in shape like Pl. 148,1. Cloth-impression on the bottom. Lower half with violet-red slip. Upper half painted with same pigment as shown in fig. 75 K 5590.

Height 146 mm. Diam. 127 mm.

K 5602 Skel. 24.

Shape like Pl. 148,1. Lower half with slip, upper half painted as shown in fig. 75 K 5602.

Height 135 mm. Diam. 112 mm.

Pl. 157,1 (K 2282) Fragment of bowl, like Pl. 155,1 but with a knob on the outside below the rim.

This specimen was found near Skel. 41 but may not belong to it.

Pl. 158,2—5 (K 3203: 17, 4, 13, 8) Pai 1923.

Handle fragments with triangular impressions.

Pl. 158,6 (K 3201) Locality not well defined. Foot of a bowl-shaped vessel.

Pl. 157,3 (K 2288: 1) Skel. 23.

Handle of an urn.

Pl. 157,4 (K 2294) Near Skel. 32.

Marginal sherd of a bowl.

Pottery from other Sha Ching sites.

As the other Sha Ching sites yielded very little pottery, we add here the few specimens from these places. One complete urn Pl. 150,2 (K 6176) from the eastern burial place has already been described above.

K 6209 Sha Ching. E 6 li.

In shape like Pl. 148,2 but with a triangular protuberance opposite the lug. Decor as shown in fig. 75 K 6209.

Height 195 mm. Diam. 180 mm.

Pl. 158,1 (K 6190) E 5 li. Pai 1923.

Handle with triangle pattern.

Pl. 158,7 (K 2293: 1) E 6 li.

Sherd with swimming hooper swans.

Objects of bronze, stone etc. from Sha Ching S. grave field.

Found in 1924 in registered graves.

Bronzes.

Pl. 156,1 (K 2296).

Found in the earth after excavating Skel. 35.

Lancet-shaped object with a guard at the upper end.

This object shows colour-bands running, some straight across, others diagonally and indicating that round the bronze was tied some kind of a ribbon.

L. 104 mm.

Pl. 156,3 (K 2283) Skel. 45.

Arrow-point stuck in the spinal column of Skel. 45. Cross-section see fig. 76.



Fig. 76. Cross-section of arrow point.

Pl. 156,4 (K 2276). In 0.5 m. depth, near Skel. 45.

Bronze ring crowning the handle of a knife (compare Arne: »Die Funde von Luan P'ing and Hsuan Hua») BMFEA. N:o 5, 1933, Taf. 1, 4, 7, 8. Taf. IX,7.

Pl. 157,9—11 (K 2349: 142—145) Skel. 10.

This is a group of bronzes belonging to Skel. 10.

10 is the point of a knife.

9 is a flat 3-lobed piece with spiral design on the front.

On the back is a bridge on each of the end lobes.



Fig. 77. Bronze from the Luan P'ing grave.

An exactly similar piece (fig. 77) was found in the Luan P'ing tomb (Arne, BMFEA. N:o 5, Taf. VI,5).

11 are tubes, annulated at the ends and widened and smooth in the centre. Identically the same type of tubes occurred in a large consignment of Ordos bronzes which I bought in 1927 from Sui Yuan.

Pl. 157,6 (K 2349: 10) Skel. 11.

Bronze button.

Stone objects.

Pl. 157,12 (K 2349: 12) Skel. 14.

Yuan ring of marble. Outer diam. 100 mm. Thickness 4 mm.



Fig. 78. Longitudinal section of marble object.

Pl. 157,2 (K 2304: 1, 2) Skel. 53.

Objects of dark slate with a central hole. The use of these objects is unknown to me. They have a remote likeness to the stone knives but their front edge is blunt.

Pl. 157,5 (K 2349: 11) With parts of a skull 0,3 m. SW from the pot Skel. 39.

Small marble object with a button on the back (see section fig. 78), recalling the shape of very short jade buckles.

Beads.

Pl. 156,5 (K 2349: 93—140) Skel. 17.

White tubular beads of a hard mineral substance, probably a Mg-silicate.

Pl. 157,7 (K 2349: 69) Skel. 35.

Bean-shaped, slightly flattened turquoise bead.

Cowries.

Cowries were found in a number of these burials. They are all ground flat and open at the back. Only a few specimens are reproduced here.

Pl. 156,2 (K 2349: 62, 63, 64, 65, 68) Skel. 35.

Five cowries.

Pl. 156,6, 7 (K 2349: 85—86) Skel. 17.

Two cowries.

Pl. 157,8 (K 2349: 60—61) Skel. 33.

Two cowries.

Objects found by Pai 1923 on the Sha Ching S. grave field.

Most of them probably picked up on the surface.

Pl. 159,7 (K 4103: 134).

Bronze tube like those found with Skel. 10.

Pl. 159,8 (K 4103: 132).

Bronze twin-button attachment-piece.

Pl. 159,3, 4 (K 4103: 136, 126).

Bronze buttons. Pl. 159,4 adorned with central big knob surrounded by 8 small knobs.

Pl. 159,16, 17 (K. 4103: 128, 127).

Rings of bronze wire, 2 mm. in diam. Similar rings were common in the Luan P'ing and Hsuan Hua graves. See Arne loc. cit. Pl. VI and XI.

Pl. 159,1 (K 4103: 131).

Gold wire bent into a ring.

Pl. 159,14 (K 4103: 159).

Fragment of a sandstone knife.

Pl. 159,2 (K 4103: 1—20).

Large carnelian beads in different shades of colour.

Pl. 159,6 (K 4103: 122).

16 cylindrical beads of white hard material.

Pl. 159,10 (K 4103: 124).

Short white cylindrical beads.

Graves E of Sha Ching.

At a distance of 5, and in some cases 6, li E of Sha Ching, Pai made in 1923 very important finds, specially of bronzes. Very few pottery pieces were found here, but Pai's Skel. 4 is very instructive for purposes of comparison with the S. grave field. In this burial Skel. 4 was found the broad urn Pl. 150,2 which is strikingly like Pl. 151,2 found by Pai in the S. grave field in 1923.

Pl. 158,1 a handle of typical Sha Ching pottery was found E 5 li.

Pl. 158,7 a sherd with swimming hooper swans from E 6 li is one of our finest specimens of Sha Ching pottery with bird frieze.

K 6209 (Fig. 75 K 6209) from E 6 li resembles in shape Pl. 148,2 from S grave field, Skel. 43.

As the bronzes, beads etc. are also of the same kinds in both grave fields, there is no doubt that they both represent the Sha Ching stage.

In 1924 I had no time for detailed work in the E field. But after an excursion which I made together with Pai I became convinced of the similarity of the two furnitures.

In 1923 Pai met a villager who sold him the bronze objects shown in Pl. 161 (K 4106: 1—6, there are two pieces similar to 1).

Pl. 161,1 (K 4106: 6) is a large four-lobed »button» or attachment-piece with a strong angular cross-bridge on the back. The other two pieces K 4106: 4—5 are of exactly the same shape.

Pl. 161,2 (K 4106) is a larger, elongated, 3-lobed object of much the same type as Pl. 161,1. Only a single vertical angular bridge on the back.

Pl. 161,3 (K 4106: 1) Bronze disc with a loop on the slightly convex side.

Pl. 161,4 (K 4106: 2) Bronze celt, very slightly asymmetrical in longitudinal section. Near the rear edge on the broad side, not visible, a longitudinal hole 16 mm. long.

The man who sold these six bronzes to Pai took him to the place where he had found them. Here Pai made a digging and found a large number of objects, K 4105: 1—37.

Pl. 160,1 (K 4105: 37) A very completely carbonatized bronze object consisting of a disc 71 mm. in diam. and 3 mm. thick. To the edge of the disc is attached a second part, 35 mm. at the base and 29 mm. high. This part is so completely decayed that only the shape of the base can slightly be traced.

The whole object was wrapped in a piece of cloth the structure of which can be seen on both sides, covering in fact a large part of 1 b.

Fortunately we possess a fine Ordos bronze K 10.329 (Pl. 160,2), bought in Peking, which seems to give us an approximate idea of the nature of our decayed bronze from the Chen Fan desert. I do not say that the animal was the same, but certainly an animal like that of K 10.329 was attached to the Chen Fan disc.

Pl. 162,2 (K 4105: 13).

A bronze application of the same type and size as Pl. XXV,10 of my »Hunting Magic». Our specimens (4 pieces) are all deeply carbonatized but there is no doubt that here is the same dragon design as is so admirably illustrated in the said plate of »Hunting Magic.»

Pl. 162,3 (K 4105: 17).

Fragmentary bronze application with a long bridge on the back.

Pl. 162,24 (K 4105: 18).

Fragment of 3-sectioned bronze application.

Pl. 162,18, 19 (K 4105: 24, 23).

Bronze tubes.

Pl. 162,21 (K 4105: 20.)

Bronze button.

Pl. 162,30 (K 4105: 12).

Elongated bronze object, perforated near one end.

Pl. 162,27 (K 4105: 9).

Bronze ring.

Pl. 162,25 (K 4105: 26).

Bronze link.

Pl. 162,26 (K 4105: 5).

Carving on a hollow bone. Probably representing a feline head.

Here we have described 10 bronzes from the collection K 4105: 1—37 made by Pai when digging at the spot 5 li E of Sha Ching, where the villager stated that he had found the objects in Pl. 161. It is of course not *proved* that all these objects belong to one burial, but it is not unlikely that they do so. Two of them, Pl. 160,1 and 162,2 are typical Ordos bronzes, and the small bone sculpture Pl. 162,26 falls well in line with the style of the Ordos bronzes.

Near the place where in 1923 Pai found the bronzes K 4105, he found on 27/8 1924, partly on the surface (a), partly by digging over the chest (b) of a skeleton, K 2321¹⁾.

Pl. 162,4 (K 2321: 12—13 b).

Bronze application.

Pl. 162,17 (K 2321: 5 b).

Bronze button.

Pl. 162,20 (K 2321: 2 b).

Fragment of knife blade.

Pl. 162,28 (K 2321: 2 a).

Bronze ring.

Pl. 162,29 (K 2321: 10 b).

Bronze twin button application.

Pl. 162,9, 10, 12 (K 2321: 4 a, 3 a, 1 a).

Beads, 9, 10 carnelian beads. 12 a white bead.

K 4104: 1—88 are objects collected by Pai 1923, 5 li E from Sha Ching. A good many were probably picked up on the surface.

Pl. 162,1 (K 4104: 1).

Marble disc with perforations.

¹⁾ It is stated on a label that this find K 2321 of 1924 was made only 8 feet from K 4105 of 1923. However, the distance from Sha Ching is 5 li for K 4105 but 6 li for K 2321, simply an instance of the inaccuracy of the natives.

Pl. 162,6 (K 4104: 83).

Bronze object.

Pl. 162,5 (K 4104: 43).

White hard tubular beads.

Pl. 162,7, 8, 14 (K 4104: 68, 70, 71).

Pendants of amazonite (also reproduced in colour Frontispiece 2 fig. 15—17).

Pl. 162,13, 15, 16. (K 4104: 72, 73, 75).

Green beads. Probably turquoise, but very hard.

Pl. 162,22 (K 4104: 88).

Very minute turquoise beads.

Pl. 162,23 (K 4104: 7).

Gold wire turned into a ring.

Objects from various Sha Ching localities.

Pl. 159,11 (K 2313: 11).

Very large bronze button.

Pl. 159,5 (K 2313: 12).

Bronze button with very high centre.

Pl. 159,13 (K 2313: 19).

Perforated marble object.

Pl. 159,15 (K 2313: 16).

Oval marble object, perforated at one end.

Pl. 159,9 (K 2314: 3).

Greyish-green bead.

Pl. 159,12 (K 2313: 43).

Beads of various materials.

Pl. 158,8 (K 2457: 5).

Perforated stone. Mace-head?

Pl. 158,9 (K 3199: 1). S. grave-field.

Whetstone of sandstone. L. 93 mm.

Pl. 158,10 (K 2313: 7). Sha Ching. Surface.

Whetstone of fine-grained red sandstone. L. 88 mm.

Pl. 158,11 (K 2309: 3). Sha Ching. E 6 li. With a skeleton.

Whetstone of red sandstone. L. 87 mm.

Pl. 158,12 (K 2295: 1). Sha Ching E 6 li. With a skeleton.

Whetstone of fine-grained black micaceous sandstone. L. 85 mm.

* * *

We have reviewed above a very varied body of furniture from the Sha Ching sites. Some of this material was picked up from the surface during Pai's first reconnaissance in 1923. Some was excavated and carefully recorded by us in 1924.

Only one of the two main grave-fields, Sha Ching S., was systematically excavated, but both the few funeral urns found at the Sha Ching E. grave field and the bronzes, beads etc. from the same place agree so fully with the furniture of Sha Ching S. that there is not the slightest doubt about the identity of the two sites as marking together a definite archaeological period.

The only dwelling site of Sha Ching age that we have located in this area, the walled-in Liu Hu T'un site, differs from the burial grounds exactly in the way we have found in older periods, from Yang Shao up through the ages: here, as everywhere else in dwelling sites, the sediment is the »hei t'u«, the local soil mixed with ash and charcoal. In this characteristic sediment were found the giant Li tripods and the bowls with a short, triangular handle, types which were never met with in the burial sites. Here again we find a differentiation between mortuary pottery and dwelling-site pottery such as we have met in other Kansu stages.

For a determination of the age of the Sha Ching stage the ceramics are of no use because we have no similar pottery anywhere else to compare them with.

Fortunately the bronzes offer some good points of correlation. Pl. 157,9 and 11, Pl. 160,1 and Pl. 162,2 are all highly characteristic Ordos types.

Pl. 157,9 from S gravefield, Skel. 10, is practically identical with one of the Luan P'ing bronzes, Arne l. c. Pl. VI,5.

Although the tubes in Pl. 157,11 do not belong to any localized find, they undoubtedly belong to the Ordos group. The same applies to the bronze disc. Pl. 160,1 and the attachments with dragon design Pl. 162,2: Especially the two last types are advanced productions of the Ordos art.

There is little doubt that the large number of bronzes which I brought together in my paper »Hunting Magic« represent various stages of what we call Ordos bronzes. Sometime in the future it will be possible to subdivide these finds and establish a detailed chronology. For the present we have to accept the Ordos bronzes as an animal style in its entirety for the origin of which Karlgren has assigned the period around 300 B. C. as the latest possible date. On the other hand, the origin of this animal style may be much earlier. Among the Yin bronzes there are some knives the handles of which are crowned with animal heads in a way well known from the animal bronzes of the northern steppes.

A means of bringing a step further the determination of the age of the Sha Ching stage is offered by the *absence* — as far as we know — of iron in the graves and »hei t'u« of the Sha Ching stage, as compared with the frequency and abundance of iron in the Han sites of the same area. As will be more fully explained in our final chapter, we have in this way arrived at 500 B. C. as a probable date for the end of the Sha Ching time.

There is only one more observation to be made in this chapter. As we shall see more fully in chapter 30, the Japanese archaeologists at Hung Shan Hou in Jehol found a «cist grave culture» with Ordos (Sui Yuan) bronzes associated with a pottery quite different from that of Sha Ching. Whether this is a geographical differentiation or a differentiation in time we cannot decide at present.

22.

THE CONTINUITY OF KANSU CERAMIC ART.

The review of the prehistoric ceramic art of Kansu which we are about to present will begin with Yang Shao and end with Sha Ching.

In the present imperfect state of our knowledge we are not able to link up the Ch'i Chia stage with Yang Shao in the same definite way as has been done with all other stages.

In chapter 8, dealing with the Ch'i Chia P'ing pottery, I have given the reasons for interpreting this group as pre-Yang Shao. When the coarse unpainted pottery of the Kansu sites, which we unduly neglected, has been carefully studied, the Ch'i Chia stage — which is almost entirely lacking in painted pottery — will certainly be found to possess a definite link with the Yang Shao stage.

Wherever we meet the Yang Shao stage, whether in Honan or in Kansu, it suddenly appears as a well-organized culture crowned with a juvenile ceramic art. It contains many features of adolescence coupled with selfconscious strength in contrast to the decadent maturity of the Ma Chang period. The Yang Shao people were the first to fill northern China with prosperous communities, their handicraft was among the best of their time and their social life seems ruled by customs held in high veneration.

Where their culture originated from we know just as little as we know the origin of the wonderful bronze art which, half a millenium later, sprang up over night in Anyang.

But as soon as we enter the sunlit Yang Shao time we are able to follow the continuous development of the Kansu ceramic art up through the ages.

Palmgren has very elaborately traced in his monograph the progeny of Pan Shan: the Ma Chang mortuary urns. He has shown how the broad-based urns of Pan Shan became transformed into the high, pearshaped Ma Chang urns with very small base. (Fig. 79 K 5021—K 5289). He has further demonstrated how the small spiral centres of the Pan Shan urns grew bigger and were filled with various designs, and how in Ma Chang time the spirals were transformed into concentric circles. (Fig. 79 K 5168—5307).

In Fig. 79 (K 5115—K 5369) we have given one of several instances which show




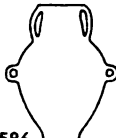


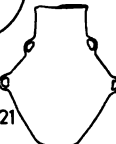


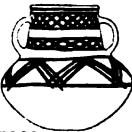














Period	Shape	Pattern
Sha Ching	 K 6176	 K 5471
Chia Yao Ssu Wa	 K 5682  K 6586	
Hsin Tien	 K 5513  K 5506  K 5421  K 5715  K 5986	 K 5389  K 5715
Ma Chang	 K 5137  K 5342  K 5308  K 5289	 K 5292  K 2158:23  K 5307  K 5369
Yang Shao	 K 5021  K 5095  K 5195	 K 5168  K 5115

Fig. 79. The development of Kansu ceramic art.

how the decorative design, here the trellis-filled rhombi, pass over from Yang Shao age to Ma Chang.

The development from Yang Shao to Ma Chang is in many features degenerate, as is the case, for instance, with the death pattern. The strict customs regulating the burial ceremonies of Middle Yang Shao were evidently not upheld any longer in the Ma Chang period, and the death pattern gradually deteriorated into rows of minute rectangles (Pl. 116, K 5331. Pl. 113, K 5356).

The dwelling-site pottery affords other instances of relationship between Yang Shao and Ma Chang. The slender household urn Fig. 79. K 5195 may well be the ancestor of the tall Ma Chang urn K 5308. The spiral decor of K 5195 (Pl. 561a) runs clockwise, as do the spirals of P. 109, 4 & 5, in contrast to the anti-clockwise spirals of the Pan Shan graves.

The concave triangles, so common in the Yang Shao household pottery recur in Ma Chang household ceramics, Pl. 107,7, Pl. 109,5.

After all, there is not the slightest doubt that Ma Chang is derived from the Kansu Yang Shao. There are in fact a small number of vessels which might just as well be Late Yang Shao as Early Ma Chang.

When we now turn to the relationship Ma Chang — Hsin Tien we find a fundamentally different situation. At first sight there seems to be an entirely new ceramic complex: the ware is radically different from that of Yang Shao—Ma Chang, the shapes of the vessels have at first sight little or no relation to those of the preceding periods, and the designs are equally unfamiliar.

I had actually held this view for many years; but now, when I had to take up a definite position in regard to these problems, in an effort to penetrate a difficult situation I finally perceived that the dissimilarities were more superficial than real.

We will now first analyse the shapes of the Hsin Tien vessels (see fig. 80—81).

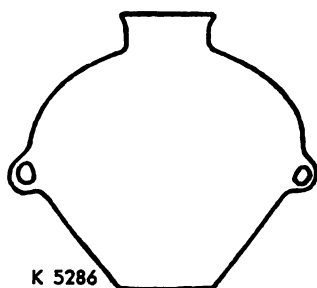
In the Hsin Tien mortuary pottery there are only two main types of vessels, the urn (Pl. 127—137) and bowls (Pl. 138—140). Within each of these main types there are very numerous variations in proportions and even quite aberrant specimens such as Fig. 82, K 5818 among the urns.

In fig. 80 we have dealt with the probable ancestry of the normal Hsin Tien urn. In the first and second horizontal row there are, to the left, two Ma Chang urns K 5286 and K 5617. To the right are the corresponding Hsin Tien urns.

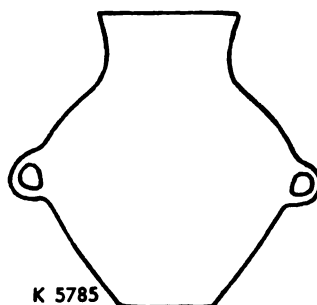
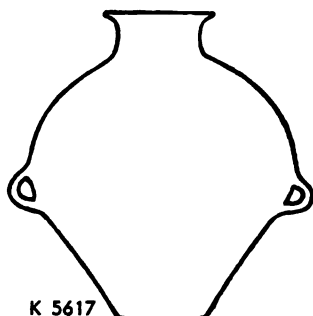
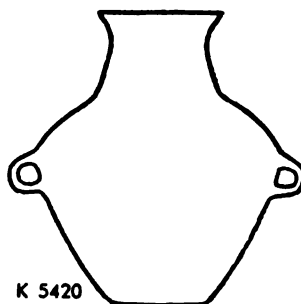
In the bottom row of fig. 80 there are, to the right, two unusually broad Hsin Tien urns K 5390 and K 5273. In the Ma Chang stage I have not found any counterpart to these urns, but among the Yang Shao urns of Kansu there is a small number of this broad type (Fig. 80, K 5266).

Above I have mentioned Fig. 82, K 5818, as an aberrant type of urn. Its decor is genuine Hsin Tien and it forms part of the furniture of Ssu Shih Ting S. 13. Bachhofer has reproduced in his article in *Sinica — Sonderausgabe* 1935, Taf. 1. (facing p. 112), a Kansu urn with a simple but characteristic design of concentric

Ma Chang



Hsin Tien



Yang Shao

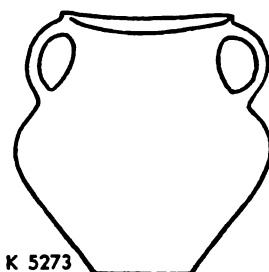
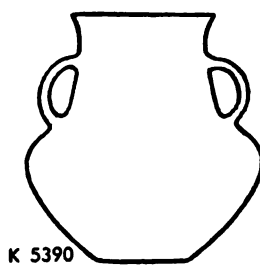
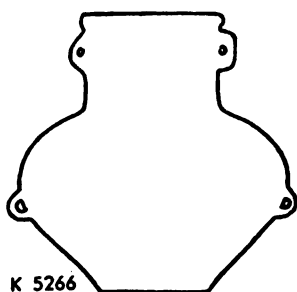


Fig. 80. Ancestry of Hsin Tien urns.

horseshoe lines. In our photographic archives we possess a photograph of the same vessel.

In its decor this specimen resembles Pl. 180,2, a toy tortoise of Yang Shao age, but its design also resembles that of Pl. 172, 1, a Li tripod, possibly of Hsin Tien age. The urn published by Bachhofer may be Yang Shao, it may be Hsin Tien.

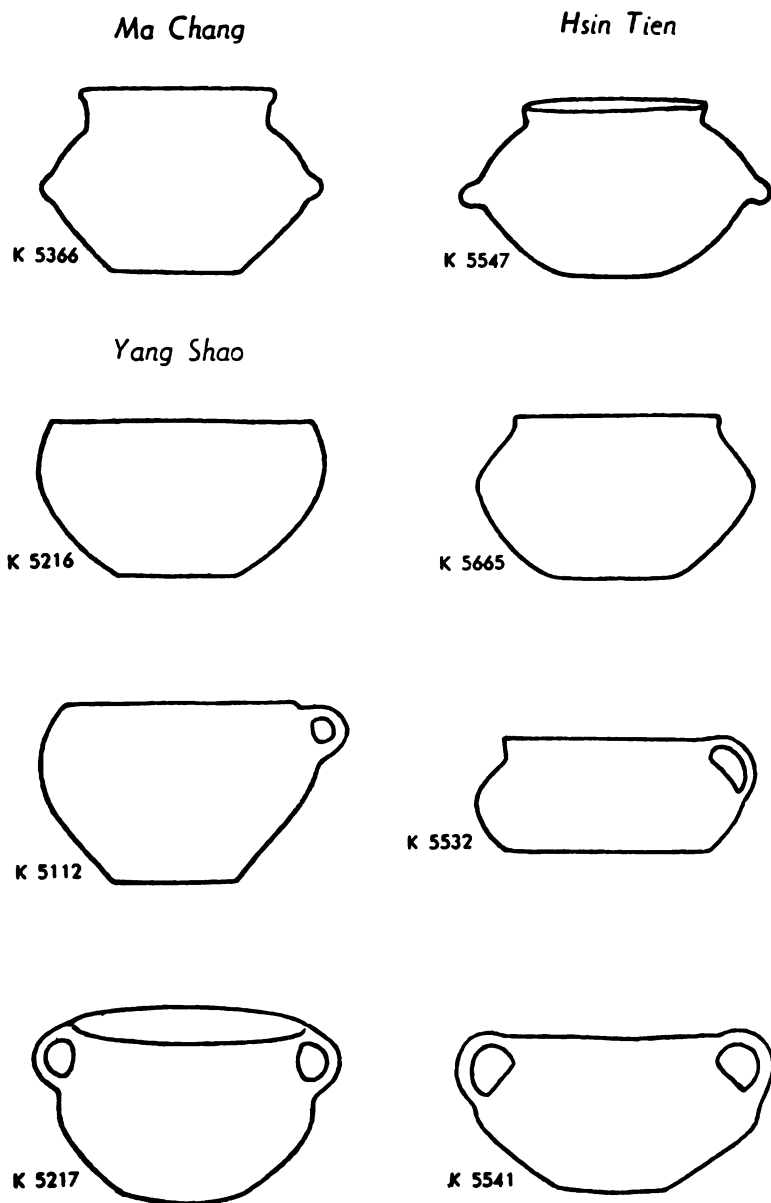
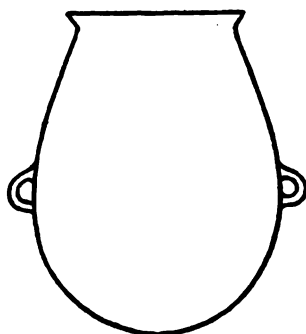


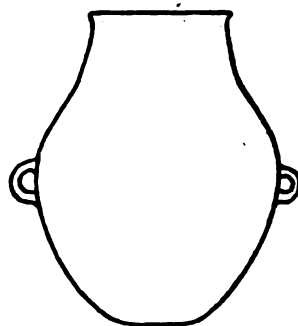
Fig. 81. Ancestry of Hsin Tien bowls.

Its contour is given in Fig. 82 (left) for comparison with the Hsin Tien urn K 5818.

When I first began to study the bowls of the Hsin Tien stage I was at a loss to discover whence they had originated. A glance at our Pl. 138—140 will show that they have one feature in common not often seen in bowls: they all have a con-



Bachhofer



K 5818

Fig. 82. Aberrant forms of Yang Shao — Hsin Tien urns.

tracted mouth. When once this feature occurred to me, it at once became clear that their ancestry should be sought among the small, relatively low urns or bowls of Ma Chang — Yang Shao age. Fig. 81 clearly indicates these similarities. The four vessels to the right are bowls of Hsin Tien age. The first on the left is a Ma Chang urn. The second and the third are Yang Shao bowls and the fourth is a Yang Shao urn.

Let us now turn to the decor of the Hsin Tien vessels. Here are six groups of features which can with a fair degree of certainty be derived from Yang Shao and Ma Chang prototypes.

1. *Line-filled triangles.* Pl. 135—138 give ample instances of this design. Pl. 115, K 5321 presents the same design on a Ma Chang urn. Other instances are shown to the extreme right of Fig. 79: K 2158: 23 is Ma Chang and K 5715 is Hsin Tien.

2. *The tent pattern.* This design is best shown by Pl. 135, K 5668. A fine specimen on a Ma Chang urn is Fig. 79 K 5292. K 5389 is a Hsin Tien urn and K 5471 proves that this pattern survives into the Sha Ching stage. It should be added that it is already found among the designs incised on the Ch'i Chia vessels.

3. *The meander.* This is one of the main designs of the Hsin Tien urns (Pl. 127—131). Beginnings of meanders of Ma Chang age are shown in Pl. 114. A line drawing from K 5317 is illustrated in fig. 83. It is a kind of twin meander, not the consecutive meander of Hsin Tien age but in general appearance it comes very near the compact Hsin Tien meander.



Fig. 83. Meander design of Ma Chang urn. K 5317.

4. *Zigzag-bands and saw-bands.*

We combine these two designs because they are shown together in Pl. 140, K 5601.

The horizontal concentric serrated bands may be derived from

the sawbands of the death-pattern which dominates the Pan Shan urns. The band of short zigzag lines placed between two serrated bands on K 5661 has its exact counterparts in Pl. 101 (Late Yang Shao).

5. *Horizontal wavy bands.* Single wavy bands as seen on the neck of both urns Pl. 129 and double wavy bands, Pl. 127, K 5819 are too little characteristic to permit of fruitful comparisons. But fortunately we possess in Pl. 137 two vessels, K 5273 and K 5762, which speak an unmistakable language. Here the single wavy line is suspended from a horizontal line in exactly the same way as in a large number of Pan Shan urns (Pl. 75, 80, 81, 83, 89, 90).

Yang Shao

Hsin Tien

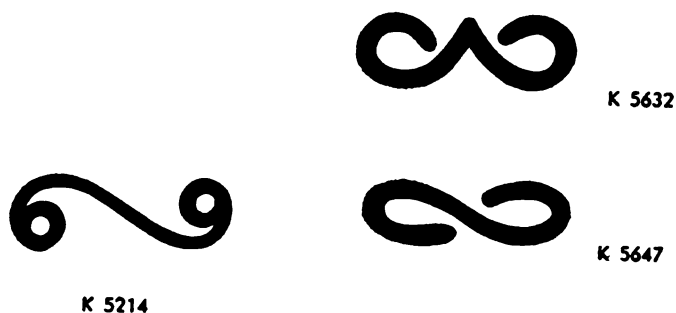


Fig. 84. Origin of the double hook.

6. *The double hook.* This is one of the principal designs of the Hsin Tien urns. In its simplest form it looks like Fig. 84 K 5632, but it is often further complicated by appendices hung beneath its central part (Pl. 128—131).

It would be impossible to enter this queer design in our file of comparisons had we not a variant of it like Pl. 134, K 5647, a simple anti-clockwise double spiral, one of the main designs of a large number of Pan Shan urns. Fig. 84 K 5214.

I am fully aware that this comparison rests upon the isolated evidence of Pl. 134, K 5647. But we have something more to support our argument, namely Pl. 131, K 5408, which shows a file of anti-clockwise double spirals connected by crossbars.

We have tried above to explain both the shapes and the main designs of the Hsin Tien vessels by way of comparison with Yang Shao and Ma Chang vessels. In addition to the designs discussed above there are on the Hsin Tien urns a number of marks, hardly decorative but largely symbolic. These are the animal and human figures, the *ji* and *tien* pictograms identified by Karlgren, and a number of unidentified signs collected in Fig. 58. Most of these are probably innovations connected with an agricultural fertility cult. The *tien* sign may possibly have a Ma Chang precursor in similar signs at the base of the neck of Pl. 109, 2, 4, 5.

* * *

The Ssu Wa and Ch'ia Yao ceramics are entirely undecorated. Consequently we are here limited to shapes in our comparisons.

The most striking feature of the Ssu Wa urns is their saddle-shaped mouth. Some of the Ch'ia Yao urns also have a slightly saddle-shaped mouth, this being practically the only point of similarity between these two groups of ceramics.

In plate 137 we have brought together three Hsin Tien urns with saddle-shaped mouth. I think that this is a strong argument in favour of a connection between the Hsin Tien and Ssu Wa ceramics in spite of the striking contrast in ware and surface and the lack of all decor in the more recent group.

A still stronger connecting link is formed by the Li tripods with bulbous legs. Pl. 174, 2 is a tripod of Hsin Tien age. Pl. 174, 1 and 173, 2 are from Ssu Wa Shan.

Fig. 79 K 5421 (Hsin Tien age) and K 6586 (Ch'ia Yao, Skel. 3) illustrate two isolated specimens offering considerable points of resemblance.

* * *

When finally we turn to the most recent of our stages, Sha Ching, we are back in the same difficult position as when we discussed the oldest stage, Ch'i Chia. Ceramic connections are scarce. From our study of the very conspicuous bronzes we know that Sha Ching is our most recent ceramic group, but actual parallels are rare and not very convincing. Fig. 79 K 5471 has the same »tent-pattern« as K 5389 and K 5292 of Hsin Tien and Ma Chang resp. But this is a simple and widespread pattern offering only slightly convincing evidence.

More striking is the identity in shape of Fig. 79 K 5986 and K 5506 of Hsin Tien age with K 6176 of Sha Ching.

* * *

From Yang Shao (possibly also from Ch'i Chia) up through the ages: Ma Chang — Hsin Tien — Ssu Wa — Ch'ia Yao — Sha Ching, we have traced the stages of the prehistoric ceramic art of Kansu. At the beginning of Hsin Tien some innovations were introduced in the kind of ware and the use of new symbols. With Ssu Wa and Ch'ia Yao another ware is taken into use. The most marked break comes with the introduction of the Sha Ching stage with new shapes and new designs. Yet even here much of old tradition is preserved, as emphasized by the giant Li tripods of Sha Ching, Pl. 175.

As a whole we are entitled to state that, in spite of certain innovations at different times, there was remarkable continuity in the development of the ceramic art of Kansu during two thousand years from 2500—500 B. C.

In this respect Kansu stands in marked contrast to Honan, where Yang Shao is not only the first but also the last stage of prehistoric painted pottery. This we can explain only by assuming that in Honan one or more pre-Anyang stages,

Hsia or what ever other name we may use, mark the very beginning of dynastic China, suppressing the painted pottery in favour of the new bronze art.

The later stages of Kansu were contemporaneous with the early dynasties of Honan-Shensi. Nevertheless it is noteworthy how few are the parallels between Kansu and dynastic China during the twelve hundred years 1700—500 B. C. The meanders of Ma Chang and Hsin Tien, together with the Li tripods with bulbous legs of Ma Chang—Ssu Wa (in shape very like early bronze Li), are almost the only contacts with dynastic China to which I am able to point. Everything goes to show that during the Yin and Chou dynasties Kansu remained a relatively closed backblock, receiving impulses from quarters other than the dynastic area.

The Yang Shao culture had a wide dispersion, ranging probably from Sha Kuo T'un to near Kokonor.

Counting from the end of Yang Shao, Kansu becomes an art centre of its own, developing a remarkable succession of painted pottery cultures.

23.

SEMILUNAR AND RECTANGULAR KNIVES.

A very important element in the furniture of the prehistoric sites of Northern China is the semilunar and rectangular knives. They abound in the Yang Shao sites everywhere from Honan to the Kuei Te canyon on the border of Tibet. They are common in the Hui Tsui site in the Tao valley (early Bronze Age). To judge from our finds outside the Chen Fan oasis, they seem to have been common also in Sha Ching time and possibly even during the Han dynasty.

But their range in time is much wider. They served only utility purposes and were very rarely executed in bronze. I suspect that they were made of stone by the country people down into late dynasties. Consequently their life history during historical times is practically unknown.

But among the rural population of today these knives, now made of iron, are in very common use, as I have shown in *E. Ch. C.* p. 3—5, and more fully in »Children of the Yellow Earth», p. 202—209. I have therefore thought it worth while to devote a chapter to a rapid survey of the semilunar and rectangular knives of N. China.

Pl. 163,1 (K 3226) Kansu, Ning Ting Hsien, Yuan Tsui.

(A small dwelling site of Yang Shao age.)

Made from a flake taken from a flat pebble of grey sandstone(?). Innerside of the flake not at all worked. Dorsal side thickened, ventral side thin, shows no sign of sharpening.

Two deep notches for tying.

Pl. 163,2 (K 1816) Kansu, Ti Tao Hsien, Ssu Wa Shan. Digging. Besides the graves of Ssu Wa age we found here indications of a Yang Shao dwelling site, so that the age of the specimen remains unsettled.

Formed from a flake of a pebble of black fine-grained rock. Apparently the flake was once much wider, and the thick neck has been shaped by chipping away the other half of the flake.

A very regular and sharp edge has been formed by grinding.

Lateral notches for the purposes of attachment.

Pl. 163,3 (K 11115) Shansi, Hun Yuan Hsien, Li Yü Tsun. Here a small collection was made including two painted sherds, probably Yang Shao age.

Outline rectangular, large lateral notches. Edge shaped by grinding but worn by long use.

Rock light grey, very hard.

Pl. 163,4 (K 11116) Kansu, T'ao Sha Hsien, Hui Tsui. Early Bronze Age.

Shaped from a flake of reddish-brown fine-grained sandstone.

Neck and sides thick and rounded. The original flake-edge formed without grinding a regular and fairly sharp edge. The notches are here frontal.

Pl. 163,5 (K 11103) Hui Tsui. Early bronze age.

Formed from a pebble-flake of grey quartzite.

Thin neck, edge formed only by the flaking. Notches lateral-frontal.

Pl. 163,6 (K 1952: 64) Honan, Mien Chih Hsien, Pu Chao Chai.

Grey limestone. The knife rectangular, carefully polished all over. Welldeveloped lateral notches. Low down near the edge and exactly opposite each other there are two deep conical borings, which have not met.

Pl. 163,7 (K 11102) Hui Tsui. Early Bronze Age.

Flaked from a grey quartzite pebble. Neck thick and rounded. Edge sharpened by grinding on the flaked side. Frontal notches.

Pl. 164,1 (K 3223) Kansu, Kuei Te Hsien, Lo Han T'ang West.

Early Yang Shao age.

Dark slate. Back and sides square-cut. Hole formed by one-sided conical boring.

Pl. 164,2 (K 11111) Lo Han T'ang W. (Early Yang Shao age.)

Dark slate. Back and sides square-cut. Sharp edge formed by grinding. Hole made by bi-conical boring.

Pl. 164,3 (K 3222) Lo Han T'ang (Early Yang Shao).

Dark slate. The outline of this specimen shows the winged shape that also characterizes the three following specimens from Lo Han T'ang W.

On the right side, as seen on the figure, there are six narrow indentations of a kind that we shall see more of in the three following specimens.

Pl. 164,7 (K 11121) Lo Han T'ang W. (Early Yang Shao).

Dark slate.

Strongly winged knife with two holes. Edge well sharpened. Holes bi-conically bored.

Pl. 164,8 (K 3221) Lo Han T'ang W. (Early Yang Shao).

Grey soft, non-calcareous rock. This specimen thicker than the preceding ones from Lo Han T'ang W.

Edge rather blunt. Holes much worn on their upper side. Indentations on both faces of the side contours.

Pl. 164,9 (K 11122) Lo Han T'ang W. (Early Yang Shao).

Strongly winged knife with deep side indentations crossing from one side to the other. Edge well sharpened.

Pl. 164,10 (K 11110) Lo Han T'ang W. (Early Yang Shao).

Rock greenish grey agglomerate. Upper two-thirds of the sides indentated. Edge well sharpened. In this specimen also only the upper sides of the holes are much worn.

Pl. 164,4 (K 11126) Kansu, Ti Tao Hsien, Ma Chia Yao. Age Middle Yang Shao.

Knife shaped from a sherd of typical painted Ma Chia Yao pottery. Edge well sharpened.

Pl. 164,5 (K 11125) Chihli, Lung Kuan Hsien, E 30 li, P'an Tao Tsun.

Elegantly shaped knife of red sandstone with well-sharpened edge.

Pl. 164,6 (K 1709) Honan, Mien Chih Hsien, Pu Chao Chai.

Very regularly rectangular knife of grey limestone. Sides and back square-cut. Edge carefully shaped. Hole bi-conical.

Pl. 164,11 (K 11123) Honan. Bought.

Hard green stone with dark spots.

Pl. 164,12 (K 11119) Honan, Ho Yin Hsien, Chi Kou Chai (Late Yang Shao).

Large heavy knife of reddish sandstone. Hole broadly bi-conical, formed by hammering.

Pl. 165,1 (K 1952: 3) Honan, Mien Chih Hsien, Pu Chao Chai.

Grey sandstone. Right corner missing. Shape pointed oval, reminiscent of certain Japanese blade knives.

Pl. 165,2 (K 3058: 2) Honan, Mien Chih Hsien, Pu Chao Chai.

Mussel-shell saw. Strongly worn saw-edge and close to it a wide hole. For comparison with specimens from Cheng Tzu Yai, see page 75—76.

Pl. 165,3 (K 11130) Honan, Mien Chih Hsien, Pu Chao Chai.

Rounded rectangular knife (cut out of a big mussel shell).

Pl. 165,4 (K 11129) Honan, Ho Yin Hsien, Chih Kou Chai (Late Yang Shao).

Slender oval knife cut from a mussel shell. Two holes near a rather indistinct cutting edge.

Pl. 165,5 (K 3231) Chih Kou Chai.

Knife cut from a mussel shell.

Pl. 165,6 (K 11112) Kansu, Kuei Te Hsien, Gomi Tanju, N 23° E 10 li.
Very rough semilunar knife of grey crystalline rock.

Pl. 165,7 (K 11127) Chili, Hsuan Hua Hsien, Pai Miao.
Asymmetrically semilunar knife of greenstone. Back very thick (13 mm.).

Pl. 165,8 (K 11124) Honan, Mien Chih Hsien. Pu Chao Chai.
Sickle-shaped knife of red sandstone. Proximal part missing. Back 7 mm. thick.
Edge well sharpened.

Pl. 165,9 (K 11276: 167) For comparison we reproduce here two specimens from Anyang (Hsiao T'un) acquired by Mr. O. Karlbeck.
Sickle-shaped knife of grey schistose rock. Edge very well formed.

Pl. 165,10 (K 11276: 168) Anyang (Hsiao T'un).
Large sickle-shaped knife of grey schistose rock.

* * *



Fig. 85. Japanese stone knife.

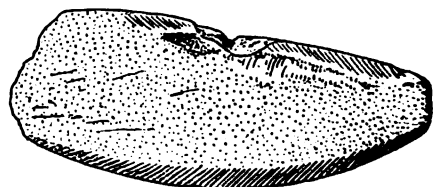


Fig. 86. Chukchee stone knife. (After Bogoras).

This type of knives seems to have a wide range among Mongoloid peoples.

They occur in the prehistoric sites of Japan. The specimen fig. 85 was presented in 1926 by Prince Oyama to H. R. H. the Crown Prince of Sweden, who gave it to the Museum of Far Eastern Antiquities.

Such knives are in use among the Chukchee and the Asiatic Eskimo. Bogoras in his monograph «The Chukchee», 1904, vol. I, writes (page 216): «Modern specimens are all of iron; but in ancient dwelling-sites I found a few blades of slate and obsidian.» Fig. 86 is a slate knife after Bogoras.

The Women's knives in use among the American Eskimo and named *ulo* is a tool of the same kind, in principle, as the Chinese knives described above, though the shape of the Eskimo blades is often different. From Therkel Mathiassen: «Archaeology of the Central Eskimos» I Pl. 19,15 we reproduce fig. 87, an Eskimo slate knife.

Concerning such knives among the ancient Indians Clark Wissler writes in «The American Indian», 1922 page 124; «From the Eskimo, particularly in Alaska, we have a knife for carving formed by setting a small flake in the lower edge of a bone handle. Similar knives have been found along the Upper Missouri, the

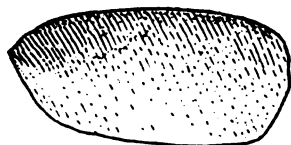


Fig. 87. Eskimo slate knife.
(After Mathiassen).

significance of which is not clear. Among the Eskimo on the North Pacific Coast, and in the northern part of the eastern maize area, we find knives of slate, a material which takes a very keen edge, but does not wear well. The semilunar knife of the Eskimo is usually of slate and is found in the St. Lawrence Valley as well. In Peru, we find the same form in copper and bronze. Chipped blades were used as knives in

all parts of both continents. The large, fine, obsidian blades of Mexico are the most famous.»

When after my return from China in 1925 Baron Erland Nordenskiöld showed me in the Göteborg Museum his admirable archaeological collections from S. America, I was struck by the frequency of rectangular stone knives. Dr. Stig Rydén, acting curator of the Ethnographical Museum of Göteborg, has kindly sent me the photograph fig. 88 of a stone knife from the Nordenskiöld collections. The specimen was found on the eastern slope of the Andes, N. of Rio Pilcomayo.

The above notes from NE Asia, the Eskimo territories and the homelands of the Amerindians may suffice to indicate the wide dispersion of the rectangular and allied blade knives. If we are right in assuming that the pre-Columbian population of America originated mainly from a Mongoloid offspring which crossed Bering Strait possibly in early Neolithic time, it seems likely that the rectangular semilunar blade knife was the common property of the Mongolian race long before the Protochinese began to differentiate their specific features.

These simple blade knives have undoubtedly their main area of distribution among the Mongoloid peoples. However, they are not limited to E. Asia and America.

In a note in *»Man»*, Sept. 1916 page 130—31 C. G. Seligman described reaping knives used by the sedentary Arabs of N. Kordofan. They consist of iron blades thrust into a wooden handle and are similar to some types of the Eskimo *ulo*.

For comparison Seligman also reproduces a somewhat similar knife with stone blade from a Swiss lake dwelling.

* * *

In an article *»Prähistorisches aus Ostasien»*, *Zeitschrift für Ethnologie*. 1924. Heft 5—6. Hubert Schmidt has given a report on similar knives found together with painted pottery in Siebenbürgen: *»Dagegen wird die Bedeutung der westlichen Kultur für dieses Siedlungsproblem noch durch eine andere Analogie von durch-*

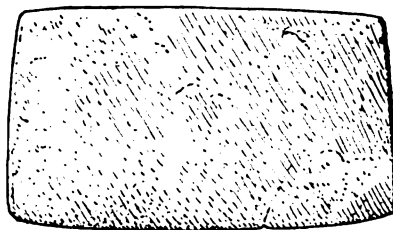


Fig. 88. Stone knife. S. America.

slagender Kraft in den Vordergrund gerückt. Es sind die höchst merkwürdigen *Steinmesser*, die in den Sammlungen Torii und Andersson aus der östlichen Mongolei, der südlichen Mandschurei, aus dem Grenzgebiete zwischen beiden, aber auch aus dem nördlichen China und der Provinz Honan auffallen. Sie bestehen aus Felsstein (Grünstein, Sandstein, Schiefer) und haben in *ihrer Urform* einen bogenförmigen Rücken, eine gerade Schneide, ein Griffende, ebenso wie eine Spitze. die nächste Abart ist rechteckig mit geradem Rücken, während weitere Abarten zwischen diesen beiden ersten Hauptformen vermitteln; alle diese Abarten haben ein oder zwei Löcher zur Befestigung einer Handhabe aus vergänglichem Stoffe. Die genannte Urform dieser Steinmesser kommt in neolithischen Siedlungen in Siebenbürgen vor. Ich selbst habe sie in mehreren Exemplaren in der untersten Siedlungsschicht von Cucuteni gefunden; sie gehören also zur dortigen Kultur A mit den polychrom bemalten Gefässen, sind aber viel länger in dem Umkreise von Siebenbürgen im Gebrauch geblieben. Denn in grösserer Anzahl und besserer Ausführung habe ich sie auch noch in den bronzezeitlichen Siedlungsschichten von Sarata-Monteoru am Südrande der transsilvanischen Alpen bei meinen Arbeiten 1917 und 1918 ausgegraben. In Siebenbürgen und in der oberen Moldau sind aber die Hauptzentren der westlichen Kultur mit der Spiralmäander-Keramik zu suchen. Der Schluss lässt sich nicht abweisen, dass diese Steinmesser von denselben Leuten aus dem Donau-Balkangebiere nach Ostasien gebracht worden sind, wie die Gefässmalerei. Ebenso wie die Keramik, haben auch die Steinmesser in ihrer neuen Heimat eine weitere Entwicklung durchgemacht.»

This sweeping statement is to be accepted only as an expression of the amazing bias of a certain school of European archaeologists, who when they see parallels between East and West readily derive the Eastern cultures from — Siebenbürgen.

In actual fact we have found in China that Schmidt's so-called »Urform« is the last stage in a long evolutionary series.

There is no doubt that the early types were such as are represented in Pl. 163. From pebbles of crystalline rocks flakes were split off, such as 1, 2, 4, 5 and 7 of the said plate. Limestone, sandstone and pottery sherds (Pl. 164,4) were easily fashioned into more or less strictly rectangular shapes. All these early forms have this in common, that they are symmetrical, rectangular or semilunar. The sickle-shape is a late product. Pl. 165,7, the specimen that animated Schmidt to make his statement, may be a symmetrical specimen broken at the right end. True sickle-shapes are Pl. 165,8—10. 8 came from Pu Chao Chai, which may be a late Yang Shao or post-Yang Shao site without painted pottery. 9—10 came from An Yang, that is to say, a fully historical bronze age.

It is to this late group of sickle-shaped stone knives, which were probably fashioned with a wooden handle, that Schmidt's specimen from Sarata-Monteoru belongs.

In fig. 89 we have traced the history of the stone sickle through the ages to their iron representatives of modern times.

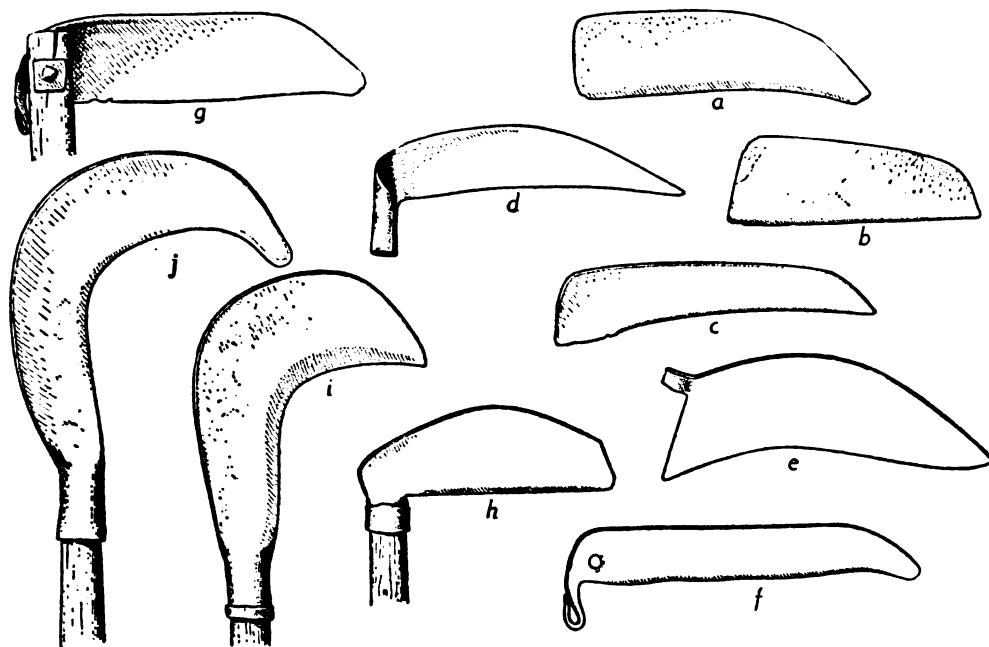


Fig. 89. History of the Chinese sickle, from stone through bronze to iron. a. Pu Chao Chai, stone b. Anyang, stone. c. Bought in Shanghai, bronze. d. Bought in Yünnan(?), iron. e, j. Hupei iron. f, g. N. Chihli. h, i. Anhui.

That the stone sickles of Siebenbürgen correspond to a late stage of Chinese stone knives is in full agreement with the fact that the Tripolje-Cucuteni painted pottery has its Far Eastern time equivalent not in Yang Shao but in Ma Chang (1700—1300 B. C.), as we shall see in the last chapters.

24.

VESSELS WITH POINTED BOTTOM.

In many Neolithic cultures, even those representing the childhood of the potter's art, there exist vessels with rounded or pointed bottom. It would seem as if crude vessels of this shape were given a certain preference at a very primitive cultural stage when well-worked floors were not yet established. Possibly these vessels were more securely placed in pits, in which they were further supported by stones.

The vessels with pointed bottom which we meet with in considerable numbers in the Yang Shao culture are of a very advanced type, as indeed is the entire culture, the ancestral stages of which are so far unknown to us. The Yang Shao

vessels with pointed bottom belonged to a very refined and varied household furniture, and they certainly served very specific purposes and were placed in stands, the nature of which we can only conjecture.

Three of the best known types are described here.

Pl. 166,3 (K 6425) Yang Shao Tsun. Pai's pocket 1922.

Among the rich harvest of ceramic material collected in Pai's pocket (= P. p.) were found very numerous and some of them, large fragments of grey pottery with basket pattern. A careful study of these fragments proved beyond doubt that a great many of them belonged to vessels with pointed bottom. The material was not sufficiently complete to allow of an indubitable reconstruction of individual vessels.

After the general shape of this group of vessels had been proved beyond doubt, such specimens of bottom and collar were collected as seemed likely to belong to one another, and in this way two vessels K 6424 and 6425 were reconstructed without any proof that the pieces thus combined actually *did* belong to one another, but with almost complete certainty that they belonged to vessels almost exactly of the shapes represented by the two reconstructions.

In this case the bottom is altogether a reconstruction based upon the material of fragmentary bottoms in our collection. Here not only the collar but the whole upper part of the vessel down to two thirds of the height of the vessel is based upon fragments that exactly fit together.

The collar has exactly the same shape as K 6424. Thickness of wall 6 mm. The outer surface covered with oblique basket pattern. Shape of the vessel slightly irregular.

The distinct difference in shape between K 6424 and K 6425 should be noted, the former being more slender and pointed, the latter more square-built in the upper part and obtusely pointed. This difference in shape is well evidenced by the available genuine old parts.

Diam. of collar 114 mm. Diam. of body 294 mm. Height 538 mm.

Pl. 166,2 (K 6601) Honan, Ho Yin Hsien, Chin Wang Chai.

Reconstruction made by Gräns of a large vessel with pointed bottom.

From the apex upwards to more than half the length, including the two lugs, the vessel is preserved in genuine old material. The mouth is genuine and so also are two small fragments on the shoulder, but it is far from certain that these three fragments belong together with the base part of the vessel. On the contrary, it is quite likely that the mouth belongs to another specimen, but it is very probable that the mouth chosen for the reconstruction represents the shape of mouth that actually belonged to the vessel represented by the genuine material in the lower part.

The mouth shows beautiful concentric striations indicating a rotary action when it was formed.

The ware of the mouth is greyish, brick-red at the surface.

The two small fragments on the shoulder have a nearly violet surface. They exhibit a longitudinal net or string impression, and in addition in the upper part of the big fragment string impressions, which run obliquely across the longitudinal pattern.

The ware in the lower well-preserved part of the vessel varies at the surface from vivid brick-red to dark grey and almost black.

The lugs are semi-circular when seen from the side. Viewed from above they are much broader at the base, and the shaping of their narrow central part has squeezed

the clay together from both sides in a way that looks as if the lug were made from two longitudinal halves.

The entire surface is covered with longitudinal net or string impressions. Near the apex is added a system of oblique spiral string impressions running to the very apex.

Length 935 mm. Widest diameter at the lugs 213 mm. Outer diameter of mouth 73 mm. Inner diameter of mouth 43 mm.

When looking at the slender shape of this vessel, with its shoulder near the neck and the loin at the lugs, one might be tempted to assume that the vessel is a copy in clay of a water bag made from the skin of a sheep or any other animal of that size. In such a case it would indicate a once nomadic tribe which later settled down to the sedentary life of farmers and fishermen close by the Yellow river.

The mouth has a widened fore-room that was certainly made with a quite specific purpose, probably for facilitating the inrush of air when the contents were poured out. If this explanation is correct, we find here another instance of remarkable skill in technical matters such as we meet with in other types of the ceramic furniture (compare the discussion on the construction of the Yang Shao Li tripods).

Pl. 166,1 (K 5798) Kansu, Chin Chow. Bought, said to be from 20 li S. of city.

Complete vessel with pointed bottom. Only one lug and a small part of the rim has been restored. The ware is light brick-red.

Thickness of the wall in the neck 6—7 mm.

The main body is conical for a length of 240 mm. The lowest 90 mm. show a rounded contour terminating in the broad apex. Above the conical part there is a shoulder 70 mm. high passing into the cylindrical neck, which is 80 mm. high with a diameter of 52 mm. On the top of the neck there is a rounded flaring rim 20 mm. broad.

Total length of the vessel 484 mm.

Widest circumference at the shoulder 180 mm. Circumference at the lugs 173 mm.

The lug is approximately semicircular when seen from the side. 45 mm. in outer diameter and 25 mm. high. Viewed from outside it is everywhere of the same width, 27 mm.

The shoulder and the conical part are covered with string lines which run longitudinally in the conical part and obliquely on the shoulder, the two systems abruptly overlapping each other. The rounded apex and the neck are more or less smoothened. In this case it is difficult to prove whether the string impression is made as individual string prints or as the impression of a piece of cloth.

* * *

These vessels are all of considerable size, but there must have been smaller prototypes in an earlier cultural stage. It is tempting to imagine that the invention of the complicated Li tripod took place by merging three small pointed vessels into a unit of three. In fact we have in the Yang Shao Tsun grave Q a slender tripod (Pl. 200,1) which is so split up that it is practically three small pointed vessels merged together under a common collar, of exactly the same shape as the collar of the Yang Shao Tsun pointed vessel Pl. 166,3.

THE PREHISTORY OF THE LI TRIPOD.

The Li, a complicated and conspicuous vessel, is widely distributed within our sites, in varied shapes and widely different sizes. Reproduced in bronze it passes over into dynastic times and is still a cherished object of Chinese art. In this way it has become an emblem of the Chinese race from its first appearance in the Yang Shao sites down to the present day. We propose, therefore, to devote this chapter to a review of the main prehistoric types of the Li.

In fig. 90 we have brought together some types of prehistoric Li all drawn to the scale 1: 10.

By the aid of Pl. 167—179 we shall describe a number of specimens of Li from different prehistoric stages.

1. *Li tripods of Yang Shao—Pu Chao Chai age.*

Pl. 167,1 (K 6541) Honan, Mien Chih Hsien, Hsi Chung Tsun. A locality not visited by me, probably like Pu Chao Chai.

Ware dark grey to yellowish. Wall 3,5—4 mm. Small tripod with the mouth contracted to form a spout. Coarse mat-impression on the legs, traces of wheel-action on the collar. Height 110 mm.

Pl. 167,2 (K 6156) Honan, Mien Chih Hsien, Pu Chao Chai.

Restoration of a specimen; half of the collar and the lower part of the legs were missing. The high, slender and pointed shape of the legs is somewhat questionable, but it is substantially confirmed by a complete specimen from the village cemetery of Yang Shao Tsun (K 5.902: 10) H. 253 mm. Height of collar 65 mm. Width of mouth 144 mm. Ware grey. This Li is unusual in several features: the collar is high and covered with the same deep mat-impression as the legs. The collar is separated from the body by a deep furrow, which in the still soft clay was cut across the mat-impression. At the base of the handle there are two smooth superimposed clay «buttons». Height 251 mm.

Pl. 167,3 (K 6498) Honan, Mien Chih Hsien, N 4 li, Ma K'o Tsun. Another locality not visited by me, probably of the same type as Pu Chao Chai.

Ware light grey. Wall 3—6 mm.

Medium-sized tripod. Points of legs complete, upper part of vessel partly restored. Body of vessel full and broad, covered with mat-impression. Collar shaped by rotary action. Height 176 mm. Lug with oblique impressions.

Pl. 167,4 (K 6270) Honan, Mien Chih Hsien, Yang Ho Tsun. This is another of the Mien Chih localities, lacking painted pottery and probably resembling Pu Chao Chai.

Ware and surface dark grey. Unusually tall collar. Body and legs covered with coarse mat-impression. Collar with traces of rotary action. Lug with oblique impressions. Height 281 mm.

Pl. 177,2 (K 5918) Shansi, Yang Chü Hsien, Yang Chü Chen. Rich site without painted pottery, probably to be compared with Pu Chao Chai.



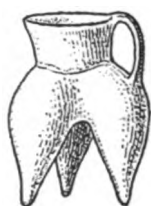
K 6541



K 6270



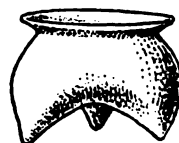
K 5953



K 6156



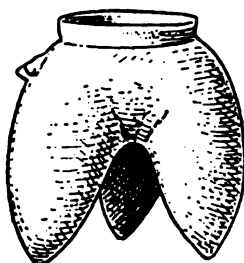
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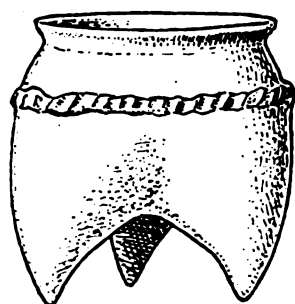
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K 5918



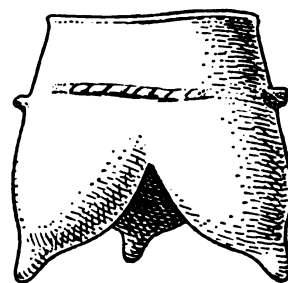
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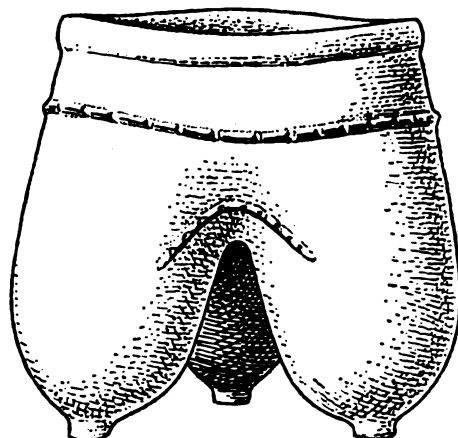
K 6545



K 5671



K 5964



K 6559

Fig. 90. Different types of Li drawn to the scale 1:10.

Restoration of a large Li, about half of which was preserved. The vessel consists of three very tall legs with very little of a central body and a narrow collar. The legs are covered with nearly horizontal string or mat impression.

The structure is strengthened by superimposed bands between the legs.

Irregularly placed over the base of one leg is a three-lobed handle, and there was undoubtedly one on the other side.

Height 318 mm.

Together with Pl. 167,2 this specimen very strongly suggests the idea that the Li tripod was formed by moulding together three vessels with pointed bottom.

Pl. 171,2 (K 5928) Honan, Mien Chih Hsien. Yang Shao Tsun.

Reproduced in »Early Chinese Culture» Pl. XVI, 6.

Ware dark grey, surface of both inside and outside smooth. A miniature Li consisting of very short legs and an enormous collar, provided with a big lug which extends low down on one of the legs. To judge from some attachment features between two legs there was also another leg, as shown in the figure.

Height 96 mm., outer diam. of mouth 110 m.

Pl. 177,1 (K 6545) Honan, Mien Chih Hsien, Hsi Chung Tsun.

Reconstruction from many fragments of a very large Li.

Ware yellowish brown. Wall 10 mm. thick. Inside very irregular. Outside with mat-impression, regular in upper part of vessel, further down crossing in different directions. 8 cm. below the border a superimposed band, 20 mm. broad, with deep mat-impressed fossae.

Height 386 mm.

Li of uncertain age.

In Pl. 168 we have combined three Li specimens of closely similar shape. They were all bought by my men in villages in Mien Chih Hsien, Honan.

Fig. 1 (K 5691) and

Fig. 2 (K 5690) came from Kou Pu Tsun.

Fig. 3 (K 6021) from Wan Shou Ssu, 25 li NW from the hsien city.

Fig. 1 and 2 are very similar: legs very low, collar flaring. Outside covered with vertical mat-impression, which has been obliterated by rotary action above the collar.

Fig. 1 has on the outside of each leg a crenelated vertical rib.

Fig. 3 has a bolder contour, recalling that of Pl. 177,1.

This type of Li is generally held to belong to the early dynasties. A fragment was found at Cheng-tzu yai (see the monograph on this site Pl. XXX,6). At Yang Shao Tsun we also found a leg, probably belonging to a vessel of this type.

Pl. 169,2 (K 6052) This tripod was bought by my collector Yao in Honan, Mien Chih Hsien, from a shepherd boy, who some days later reported the find of more pottery in the same »fen». These vessels are of the type called »Han». The boy's story is not to be taken too seriously.

The tripod was reported to have come from Fu To Tsun, 10 km. NW. from Mien Chih city.

Li with very short legs and large central cavity. Outside covered with very regular mat-impression which is obliterated below the flaring rim. Height 162 mm. Diam. 164 mm.

Pl. 170,2 (K 6053) Honan, Ho Yin Hsien, W 30 li, Kuan Chuang Yü.

Li with rudimentary legs, which merely form the three corners of the flat bottom of the vessel. Outside covered with irregularly running mat-impression, which is obliterated below the slightly flaring rim.

Height 115 m. Diam. 158 mm.

These five vessels, the three of Pl. 168 and Pl. 169,2 and 170,2. are probably of early dynastic age and seem to be derived from the Yang Shao Li in Pl. 167 by shortening the vessel and leaving out the lug.

Pl. 169,1 (K 5812) Kansu, Chin Chou, Pei Kuan, Chu Yeh Miao.

Bought.

Surface yellowish-brown. Two lugs decorated with two V-figures at the top and four deep pits at the base. Between the bases of the lugs runs a decorated band.

Height 172 mm. Diam. 146 mm.

Pl. 170,1 (K 6056) Joho. Cheng Te Hsien, E 40 li, Liang Fang.

In northern Chihli and adjacent parts of N. China there frequently occurs a brick red pottery with flakes of a grey-to-white mineral with a feel like talc. This is one of our best specimens of this ware.

The shape of the vessel recalls that of a bag with three protuberant short feet. The feet are not hollow, so that the specimen should not properly be called a Li, but its likeness in outline to Pl. 170,2 is striking. Height 192 mm.

Li of the Hsin Tien and Ssu Wa stages.

As an introductory remark to this section it should be noted that a fragment of a Li with bulbous legs like those from Hsin Tien and Ssu Wa Shan had already been found in a Ma Chang dwelling site, Shih Li P'u (Pl. 107,1).

Another general remark concerns the apparent likeness of nearly all the tripod legs of Pl. 172—174 and also Pl. 171,3 to a woman's breast. This likeness can hardly be unintentional. In this connection it is interesting to note how the painted decor of the Hsin Tien urns includes some symbols of agricultural fertility cult. According to the ways of imitative magic, symbols of woman's fecundity are often used to enhance the effect of symbols pertaining to the fertility of the fields or, *mutatis mutandis*, to the welfare of the dead.

Pl. 171,1 (K 5906) Kansu, T'ao Sha Hsien, Hui Tsui.

Brick-red ware covered with a straw-coloured slip.

One lug, which is broken away. The entire collar painted red with a black band at the rim. Only to the left of the lug, on the rim, is there a black design (fig. 54).

Below the collar, on a level with the upper attachment of the lug a red zone bordered by black. Upon the legs six red spirals with a border of black (compare fig. 133).

Height 148 mm.

Pl. 174,2 (K 6163) Kansu, T'ao Sha Hsien, Hui Tsui. Pai's digging.

Li with one lug. On a level with the lower attachment of the lug a broad, shallow incised line. Below this line the legs are covered with fine mat-impressions. Knobs between the bases of the legs.

The slightly flaring rim has numerous indentations.

Pl. 173,1 (K 5700) Kansu, Nien Po Hsien. Ma Chang Yen. Age Hsin Tien or Ssu Wa Shan.

Li, in several respects like 174,2, but with two lugs. Knobs at the junction of the legs and one knob higher up and level with the lugs. On the outside of the rim a clay band running in wavy lines. Ware exceedingly coarse and surface rough.

Height 135 mm.

Pl. 173,2 (K 6134) Kansu, Ti Tao Hsien, Ssu Wa Shan.

Li, very like Pl. 173,1 but with a dentated clay band running along one side of the vessel in a zigzag between the lugs.

Height 140 mm.

Pl. 174,1 (K 6153) Kansu, Ti Tao Hsien, Ssu Wa Shan.

Li with one lug. Rim crenelated on the outside. Opposite the lug two crenelated, raised clay bands, a longer one below the collar, and a shorter one above the junction of two legs. Above the two other leg-junctions, knobs cut in two. On the inside of the legs traces of mat-impression. Surface reddish yellow.

Height 128 mm.

Pl. 171,3 (K 5964) Large tripod bought in Lanchow. Probably Ssu Wa age.

Two knobs for handles and between them a raised band with deep incisions.

Height approx. 340 mm.

Pl. 172,3 (K 5725) Kansu, Tao Ho Hsien, Ssu Shih Ting. Hsin Tien age.

Small, low Li with low legs and one lug. Ware probably yellowish red with straw-coloured slip.

The decorated zones first covered with brownish red, upon which the design is painted in black. Horizontal concentric lines, groups of short vertical lines and a broad central belt with line-filled triangles.

Height approx. 72 mm. Diam. 110 mm.

Pl. 172,1 (K 5671) and Pl. 172,2 (K 5987) These two painted Li were bought by my men when they excavated at Ssu Wa Shan. At this place we found, in addition to the graves of the Ssu Wa stage, some material of Yang Shao age. These two neat urns have nothing in common with the Ssu Wa stage — which, as far as we know, lacks all painted pottery. At first I believed them to be of Yang Shao age (compare the decor of the toy tortoise from Ma Chia Yao Pl. 181,2). But after having studied all our Kansu ceramics in closer detail I am inclined to interpret them as being probably of Hsin Tien age. The line-filled triangles on the collar of Pl. 172,2 are characteristic of the Ma Chang and Hsin Tien stages. The simple decor of the collar of Pl. 172,1 resembles that of many Hsin Tien vessels (comp. Pl. 132—134, 138 and 140). I consider these two tripods to be probably of Hsin Tien age.

Pl. 172,1 Height 97 mm. Diam. approx. 110 mm.

Pl. 172,2 Height 112 mm. Diam. approx. 110 mm.

Li of Sha Ching age.

Among the surprising discoveries of the Sha Ching site none is more startling than the giant tripods found in the »hei t'u«, the dark soil of the dwelling site of the walled-in place at Liu Hu T'un.

During his visit to Sha Ching in 1923 my collector Pai found very large fragments, the true nature of which we could not fully elucidate before the material came into the hands of the excellent technician Mr. A. Gräns, who was able to reconstruct two giant Li tripods, one, the specimen here described, being returned to China in 1932, the other kept here.

Before the despatch of the Peking specimen I made from it the following description:

Pl. 175,176 (K 6559) Kansu, Chen Fan Hsien, Sha Ching, S. 5 li, Liu Hu T'un. Inside the wall in »hei t'u.»

A very big tripod reconstructed by Mr. A. Gräns from fragments representing the larger part of the margin, very considerable parts of the connections between the legs and considerable parts of two of the legs with smaller fragments of the third one. The brick-red ware is coarse with large mineral grains, as might be expected in such a big vessel.

The mouth is rounded triangular and slightly thickened outward. Thickness of wall 10 mm. Thickness of margin 22 mm. The thickened margin is 45 mm. deep (vertical measure). The legs are bulbous, mammae-shaped. 130 mm. below the margin there runs all round the vessel a ridge, sharply triangular in cross section but with finger prints 45 mm. apart.

Widest measurement across two legs 631 mm. Width of one leg 265 mm.

At each junction between two legs there is a curved ridge like the one round the whole vessel and similarly decorated with sparse finger-prints.

Colour variable from whitish grey and brick-red to black.

Height 565 mm. Inner diameter of mouth 430 mm. Outer diameter of mouth 480 mm.

Two tripods K 6561 and K 6558, of the same shape but smaller, have been reconstructed from sherds excavated in the Liu Hu T'un fort. Their height is 225 and 223 mm. resp.

Li-Ting.

These tripods of a transitionally type, combining characters of the Li with those of the Ting, seem to have been very common in the sites approximately contemporaneous with Yang Shao Tsun but lacking the painted pottery. Three of the vessels here described came from Pu Chao Chai, the fourth from Yang Chü Chen in central Shansi.

Pl. 179,2 (K 5901: 23) Pu Chao Chai.

An almost complete specimen. This type of tripod is a transitional form between Li and Ting. In common with the Li it has hollow legs. The shape of the legs is also of the Li type. However, these hollow legs do not stand close together as in the typical Li. These tripods have a body, mostly of compressed globular shape. Far out, at the circumference of this body, the legs are attached in much the same position as the solid legs of the Ting. The body is crowned by a collar, which in this specimen is exceptionally high, nearly as high as the body itself.

All round the body there is a clay band attached equatorially. This band is decorated with obscure finger-prints.

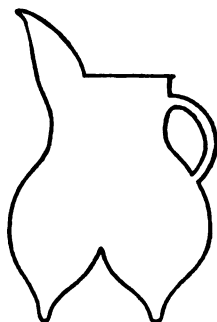


Fig. 91. Kuei of Cheng-tzu-yai.

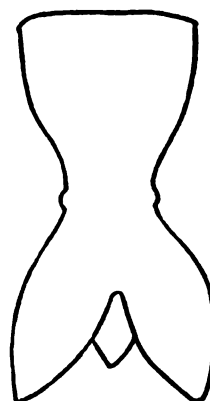


Fig. 92. Yen tripod from S. Manchukuo.

The collar is smooth with very fine striae indicating rotary action.

The outside of the body shows faint signs of an almost obliterated basket pattern.

High up on the collar the inside of the vessel is covered with a thick crust of white calcareous kettle-fur, showing that the vessel was used for boiling. H. 171 mm. Diam. of mouth 155 mm.

Pl. 179,1 (K 5901: 38) Pu Chao Chai.

Vessel, almost complete except for the legs, the shape of which has been restored from the remaining bases with the aid of K 5951: 10. Both body and collar very low. The inside close to the rim is covered with kettle-fur. Outside nearly black. H. 140 mm. Equatorial diameter 173 mm. Diam. of mouth 153 mm.

Pl. 178,1 (K 6617) Pu Chao Chai.

A unique specimen of Li-Ting. The specimen is very fragmentary and the distance between the legs is not exactly proved, but there is no doubt that the reconstruction comes very near to the truth. H. 222 mm. Largest diam. of vessel 200 mm. Inside diam. of mouth 164 mm.

The body is nearly cylindrical. The mouth curves inwards. The outside of the body is covered with a coarse but very distinct mat-impression. Just below the mouth there are two lappet-shaped lugs covered with the same coarse mat-impression as the rest of the vessel. The inward-curving mouth is smooth. The legs are bulbous and covered with the same mat-impression as the rest of the vessel.

Pl. 178,2 (K 5903) Excavated in Nov. 1926 by H. R. H. The Crown Princess of Sweden at Yang Chü Chen in Yang Hsü Hsien, central Shansi.

Another unique specimen. Ware grey, wall 10 mm. thick. Only the hemispherical bottom with the hollow conical legs is preserved. Inside rugged. Outside covered with mat-impression.

* * *

Two aberrant types from sites not studied by us deserve mention. One (fig. 91) is the golden Kuei of Cheng-tzu-yai (see frontispiece plate to the monograph of that site.) The other (fig. 92) is a Hsien-tripod (named Yen) found by the Japanese archaeologists in S. Manchukuo. (Archaeologia Orientalis. vol. I, fig. 24.)

ZOOMORPHIC AND ANTHROPOMORPHIC REPRESENTATIONS.

Clay figurines from Pu Chao Chai.

From the Pu Chao Chai site, in Mien Chih Hsien of Honan, we possess two small clay figurines, both made in the soft fine greyish brown clay which forms the material of a large part of the Pu Chao Chai ceramics.

Pl. 180,1 (K 3002: 72) A small bird figurine, 44 mm. in length. There are two old fractures, one of the beak and the other of the tail. At the latter place some grinding of recent date can be observed. Probably the finder did this grinding as a means of «cleaning» the specimen.

The work is very irregular and coarse, resulting in a pitted and wrinkled surface. There is no slip or other kind of coating.

On the underside there are three deep holes, apparently for inserting wooden pins serving as support. Two of these pins form a pair under the fore part of the body. The third hole is far behind on the left side.

Pl. 180,2 a—d (K 5966) Human figurine, 66 mm. in length. There are fractures in this specimen. One is on the front of the foot (2 c), another, a double fracture along the right side, has loosened the right arm, below at the hip and above at the ear.

Striking features of the back are the hair-knot and the pointed buttock. Equally striking is the total absence of a bust, possibly indicating that we have to deal with a male representation.

Toys from Ma Chia Yao.

From the rich Ma Chia Yao site, of Ti Tao Hsien in Kansu, we have two clay toy objects and a fragment of unknown use.

Pl. 181,2 a—c (K 3232: 70) The ware is the usual straw-coloured clay with a slight brownish tint that is characteristic of the painted pottery of Ma Chia Yao. The painting, concentric circle-ovals and interspaces fore and aft filled with concave triangles, is done in the customary Ma Chia Yao black. Thus the piece is a specimen of typical Ma Chia Yao painted pottery. Inside is a ball (stone?) to make it rattle. In shape it suggests a tortoise, and it is possibly supposed to represent one. The four holes may then be intended to receive wooden pegs for feet. However, these holes are so strongly curved inwards that they seem better intended for inserting a string for the purpose of suspension.

Pl. 181,3 (K 3232: 68) Same ware as the preceding specimen but no paint. This is also a rattle with ball inside and a hole on each side. Upon the long neck is a shapeless head with eyes and nostrils alike (monkey?).

Pl. 181,1 a—b (K 3232: 69) Ware grey. A fragment consisting only of the head of what may have been a tortoise. 1 b shows the well set-off head as seen from behind. 1 a shows the specimen from above with front turned upwards.

Vessels of Ma Chia Yao type.

Pl. 182,2 a—b (K 5775) Bought in Ti Tao Hsien, Shan Chuang.

Small scoop of typical Ma Chia Yao ware and the design painted in the usual black. The singular feature is the handle in the shape of a human head with cap and projecting nose. Eyes and mouth in painted circular design.

Pl. 183,1 a—b (K 5198) Bought in Lanchow.

Bowl of typical Ma Chia Yao shape. The painted design is also true Ma Chia Yao. The unique figure is painted on the bottom inside: a tortoise-or frog-like animal figure with curved legs and a broad head with large eyes.

Pl. 183,2 a—b (K 5199) Bought in Lanchow.

A typical Ma Chia Yao bowl (compare Pl. 54,2), in which the «frog» is replaced by a group of concentric circles and leg-like wavy lines.

Pl. 184,1 (K 5188) Bought in Lanchow.

Urn of Ma Chia Yao type. The painting done in black only. The horizontal bands of the collar and the wave-groups on the lower half of the body are familiar features. The band of swimming «frogs» on the upper half of body is singular.

Pl. 184,2 (K 5186) Bought in Kansu, Tao Sha Hsien, Ka T'u Ma Kou.

Urn like Pl. 183,1 but with lugs and with leg- or waterplant-like wavy lines on lowest part of side-wall.

Pl. 184,3 (K 5463) Bought in Lanchow.

Urn like 183,2 but the wavy lines are replaced by hooks turned to the right.

Pl. 185 (K 5196) Bought in Kansu, Chin Hsien.

The shape and the decor in black concentric bands and spirals are familiar. The novel feature is the filling of the spirals with «headless frogs».

Human heads from Pan Shan.

Among the hundreds of mortuary urns from the Pan Shan hills there were three very remarkable specimens in the shape of human heads which, with a more or less slender neck, rest upon a disc with serrate edge.

They are shown in Pl. 185—186. None was found by us.

Pl. 186,1 (K 5473) and Pl. 186,2 (K 5472) were bought at the Pan Shan hills.

Pl. 187 (K 11038: 5) was brought to Paris and there bought for our museum from the firm of Wannick.

The ware of all these vessels is the usual Pan Shan ware: pale brownish brick-coloured with a still paler, nearly straw-coloured, surface.

The eyes and the mouth are open holes. The ears are narrow scalloped ridges. On the top of the head were two truncated horns which were perforated to receive some adornment. Between these horns there lies in Pl. 186 the head of a serpent, the body of which covers the neck in graceful coils.

The three specimens are all painted in black and violet red in orthodox Pan Shan style, and the different patterns used are easy to trace back to different Pan Shan urns.

Human figures upon the Pan Shan and Ma Chang urns.

As an introduction to this section reference should be made to a bowl of Pan Shan type Pl. 182,1 (K 5495). Bought in the Pan Shan area.

The painting is in black with a broad T-shaped violet band. The main design is a childishly drawn skeleton.

Pl. 189,2 (K 5128) Bought in the Pan Shan area.

Typical Pan Shan urn with a rudimentary rib construction (compare Pl. 181,1).

Pl. 189,1 (K 5068) Bought in Lanchow.

Mortuary urn with a central human figure: circular head, arms, spinal column and legs.

Pl. 188 (K 5145) Bought in Lanchow.

Human figure much like Pl. 189,1.

Head, arms and spinal column still clearly discernible, but the legs are lost among the zig-zag bands of death-pattern lines.

Pl. 190,1 (K 5294) Bought in Lanchow.

With this specimen we have passed into the Ma Chang period, where the dismembering and degeneration of the human figure is completed.

Here the head is lost or possibly replaced by the neck of the urn. Arms and legs are turned into zig-zag bands on the elbows or knees from which fingers or toes crop out, as is not infrequently the case in pictures of the Chinese dragon.

This description also applies closely to another Ma Chang urn Pl. 190,2 (K 5312). Bought in Lanchow.

Pl. 191 (K 5301) Bought in Nien Po Hsien, Ma Chang Yen.

Here the process of disfiguring has advanced a step further in that the zigzag legs meet from both sides.

In Pl. 192, all Ma Chang vessels, the dismembering of the human body is completed. 1 (K 5309). Bought in Lanchow. Here a zigzag band with fingers on knees and elbows is all that remains.

2 (K 5296) Bought in Lanchow.

The zigzag band is cut up into angular sections, everywhere adorned with «fingers».

3 a—b (K 5370) Bought in Lanchow.

Here the scattered rudiments of the once human body are replaced by a spiral figure with fingers and manes.

4 and 5 (K 5380 and K 5381) High-footed pieces, both bought in Lanchow.

Painted design strictly geometrical; nevertheless it is easy to see the similarity between Pl. 192: 4 and Pl. 191, the upper figure.

Hsin Tien urns with human and animal figures.

Pl. 193 (K 5986) Reported to have been bought in Nien Po Hsien, Ma P'ai Tze.

This fine specimen has a red slip, upon which are painted in black a crouching human figure, five dogs and various geometrical figures. The vessel is possibly of Hsin Tien

age, though there are associations with small Ma Chang urns. For this reason the specimen is dated as Early Hsin Tien or perhaps Ma Chang.

The design needs little comment in addition to what is shown in the plate. The crouching man and the dogs (if they are dogs — note the long ears — and not deer!) are executed with skill and determination in accordance with the prevailing geometrical pattern.

Pl. 194,2 (K 5401) Bought in Lanchow.

On a high Hsin Tien urn in the upper part of the painted field, there is a zone with animals moving in graceful wavy lines. Their species is indeterminable; they may depict anything from a dragon to a legless pheasant!

Pl. 194,4 (K 5411) Bought in Hsin Tien.

Another high Hsin Tien urn which, in the central zone between the main double hooks, has a pair of birds on each side. These animals are likewise nondescript, one of them adorned with an ear!

Pl. 194 (K 5517) Hsin Tien A. Skel. 7 Pot. 1.

In the lower unpainted zone there is, on each side, a childishly drawn horselike mammal with the waist of a hornet.

A he-goat with the same thin waist and with boots on its feet is shown in Pl. 194,5. It belongs to a sherd of Hsin Tien age (K 2256: 5) and is reported to have come from Nien Po Hsien, Ma Chang Yen.

Pl. 194,1 (K 5404) Bought in Lanchow and Pl. 195 (K 5826). Bought in Hsin Tien, both big urns, of Hsin Tien type, show us what may be called «cryptic animals», exceedingly minute mammal figures strewn in between the powerful triple-coils. These animals are so disfigured that it is risky to guess their nature. Most probably these grossly elongated figures represent some kind of domestic animals, cattle and sheep (there are two species, as shown in Pl. 195). We shall revert to them in the 28th chapter «Cryptic magic».

Pl. 196 (K 5821) Bought at Ssu Shih Ting.

Large, undecorated urn of Hsin Tien age with two human figures and a bird painted on the collar. The human figures have the same narrow waist as the goat and the horse Pl. 194. In fact, the human beings, the goat and the horse have so much the same shape of body that it is doubtful whether Pl. 196 tells us anything about the dress of the Hsin Tien people.

Pl. 197,1 reproduces a Hsin Tien urn of which Mr. O. Karlbeck kindly brought us photographs. The urn is very simply decorated with horizontal bands round the collar. Attached to the lowest band is a zone of W-shaped figures. Below these, on the uppermost part of the body of the vessel, there are animals, human figures and the prototype of the Chinese pictogram *tien*, meaning lightning. (See Karlgren: Some Fecundity Symbols in ancient China. Bull. M. F. E. A. N:o 2, 1930. P. 50).

Figures on a Ssu Wa urn.

In the exhibition of Chinese Art in London 1935—36 there was exhibited as N:o 5 of the catalogue an urn from the Raphael collection. In disregard of the clear state-



Fig. 93. Figures on the Raphael urn.

ment as to the age of this type of urns in my »Preliminary report» of 1925 the specimen was labelled in the exhibition catalogue »Neolithic».

This urn of typical Ssu Wa shape is very interesting on account of the crude paintings of men and animals (Pl. 197,2) very like the Hsin Tien age paintings Pl. 196 and Pl. 197,1. It should be noted that in this case one of the animals seems to be distinctly horned.

Fig. 93 gives the sequence of these symbols all round the Raphael urn.

Animal representations and a human figure of Sha Ching age.

The Sha Ching pottery with its strictly geometrical painted design exhibits friezes of birds which are drawn cleverly and with complete knowledge of the characteristic profile of the bird species (hooper swans). Our plates 147, 150 and 158 as well as the drawings fig. 75 show these bird friezes.

One of the urns, K 3209, shows on the handle a human figure and on the body a frieze of birds. Here we meet a very curious contrast: whereas the birds are drawn in very true silhouettes, the human figure is utterly stylized in the manner with hornet waist which we know so well from Hsin Tien and Ssu Wa urns. Here the head is missing but the hand has three fingers and the foot two toes!

In one of the Sha Ching grave fields there was also found the tiny bone sculpture Pl. 162,26. It is only a fragment showing one eye and part of the other, the nose and one ear, which latter clearly shows that the piece depicts not a man but a probably carnivorous mammal.

* * *

Anthropomorphic and zoomorphic representations run through the whole series of cultural stages from Yang Shao to Sha Ching.

The animals and human figures on the Ma Chia Yao and Pan Shan ceramics form part of their decorative system and are utterly stylized even to the extent that the human figures are completely dismembered. These figures are drawn, regardless of models, in the fluent and skillful manner characteristic of the style.

The animal and human figures on the Hsin Tien and Ssu Wa urns are as a rule utterly artless. They are magic symbols added to a style with which they have little in common. Sometimes they are almost microscopical so as to interfere as little as possible with the decorative style.

There are two exceptions to this rule, Pl. 194,2 and 193, where the animals and a human figure are very artfully drawn to form elements harmonious to the ruling style.

The bird friezes of Sha Ching urns combine two highly artistic qualifications: they faithfully depict the characteristic silhouette of the birds which at the same time are made a confluent part of the strictly geometrical design.

The bone sculpture Pl. 162,26 was produced by a skilled engraver. It is interesting to note that the motif was probably a carnivorous mammal. As has been explained in the 21st chapter on the Sha Ching finds, we are here in the midst of an animal style characterized by numerous representations of carnivores made with an intimate knowledge of the models.

27.

BURIAL CUSTOMS.

The prehistoric cemeteries excavated by us in Honan and above all in Kansu present so many local features and such radical differences from site to site and from one cultural stage to another that the burial customs may well be said to form one of the most distinctive characteristics of the prehistoric cultures of Northern China.

In the present chapter we shall give brief reviews of the main features of the graves of the different regions and cultural stages. Full data will be given in the respective monographs.

The accumulation of human bones in the Sha Kuo T'un cave in SW Fengtien is not regarded as a burial but rather as a cannibalistic sanctuary (See chapter 14).

Yang Shao Tsun.

This is the only Honan site where burials were recorded.

Loc. V. Just E of the road traversing the site in a N-S direction two skeletons at a shallow depth below the surface of the soil.

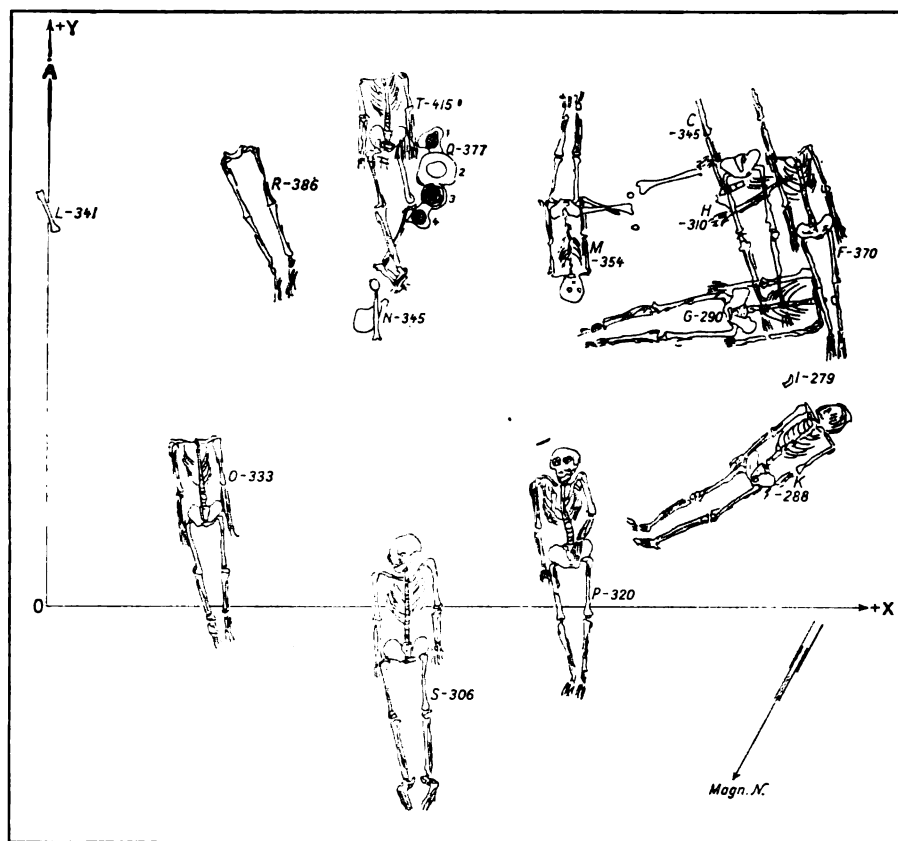


Fig. 94. Plan of Yang Shao Tsun. Loc. XII.

Both skeletons in horizontal-dorsal position. (Pl. 198,1) Head SW 15° S. No visible furniture.

Loc. XII. 100 metres NE from the small southern village we noticed during the first days of the survey some bones projecting in a loess cliff facing SSE. When Dr. Black visited us during the days 11/10—13/10 I showed him this cliff, and he at once declared that these outcrops, mostly leg-bones, were human and that consequently we had found here an actual burial ground.

As Dr. Black was compelled to return to Peking on urgent business, Dr. Zdansky kindly volunteered to undertake the excavation of this site, a task which he carried out with the utmost care. (See plan fig. 94).

All the measurements taken by Dr. Zdansky were determined by three coordinates, two horizontal, X and Y, and one vertical, Z, with the point O at the earth's surface as the zero of all measurements.

Let us now first survey the vertical distribution of the skeletons as shown in the figures -345 etc. printed near the capital letters marking the different skel-

etons. We shall then note that the uppermost burial excavated in this burial site is I -279. There are only two more, G and K, above 300. Out of 15 burials with a recorded vertical position, no less than seven are to be found between -320 and -370, which is therefore to be regarded as the vertical centre of this burial ground. The lowest of all the burials is T -415. The vertical distance between the lowest and the highest burial is thus 1.36 metre, within which layer all the vertically recorded burials of this site are to be found. Above -279 m. there is barren soil, probably to a large extent brought there when the fields were being terraced for agricultural purposes. This covering soil consisted of a top-layer of yellow earth, 1,5 m. thick, then a yellowish-grey transitional layer, 0,9 m., and below this transitional layer typical grey ashy earth.

If we now proceed to examine the horizontal position of the skeletons, we note that, so far as we can judge from Zdansky's plan, they were all laid in a horizontal position resting on their dorsal side. Of these not less than 9 have their heads turned nearly SE, varying from E 31° S to S 31° E, that is, within an amplitude of only 28°. Of the four remaining, two, G and H, are nearly parallel, W 38° S, and W 43° S respectively. K with the head turned S 30° W and M turned N 37° W are isolated exceptions. In the vertical majority-group between 320 and 370 come four skeletons of the horizontal majority group with the head turned SE, but within the same vertical group falls also such an exceptional case as M. The other exceptions, G, H and K, all occur near the 300 level. Thus it seems as if the direction with the head towards the SE prevails among the early burials, whereas the custom became more varied in the upper levels. Only one of the graves, Q, contained a rich ceramic furniture consisting of five vessels. For the rest some small artifacts were found in various places during the excavation. How far they may possibly be associated with one or the other burial will be fully discussed in the monograph describing these finds.

As just mentioned, only one of these burials, Q was associated with a rich and characteristic ceramic furniture. Here follow descriptions of the five vessels found in association with Skel. Q.

Pl. 200,1 (K 5902: 10).

This is a Li of a unique type: the legs are unusually slender with sharp points, the neck is very narrow and provided with a spout, the surface of body and legs shows no mat-impression as do most other Li, but only a faint oblique basket(?) design obscured by the smearing action that tended to smoothen the surface.

Total height 185 mm. Junction of legs 82 mm. above base level. Height of collar 35 mm.

Pl. 200,2 (K 6289) Plate of brownish-grey ware with black surface. Foot distinctly set off. Margin profiled. Diameter 251 mm. Height 54 mm.

Pl. 200,3 a (K 5902: 11) Ware and surface grey.

Flaring collar 35 mm. The outside of the collar with beautiful wheel-action striae.

The inside scraped smooth. Upper half of body scraped smooth on the outside, lower half of outside with nearly vertical basket pattern, which just below the equator is traversed by four narrow concentric lines. The lowest part of the sidewall and the entire bottom pierced by numerous holes, 8 mm. in diameter. The bottom thus forms a veritable sieve.

Height 170 mm., widest diam. 162 mm.; outer diam. of mouth 157 mm.

Pl. 200,3 b (K 6308) A small urn probably found inside the preceding one.

Collar 27 mm. high, nearly vertical. Collar and upper part of body smooth. Lower part of body with vertical basket pattern, which can also be traced on the smoothened outside of the collar. At and below the equator two impressed lines, and one near the base.

Height 107 mm.; diam. of mouth 77 mm.

Pl. 200,4 (K 6290) In its general appearance this is a genuine Li, only with the legs wide apart. But when viewed from underneath or from the inside there is visible between the bases of the three legs a small central space, concave inside and forming the small beginning of a common Li-Ting cavity.

The legs, the central cavity and the lug are covered on the outside with rather coarse mat-impression. On the top of the lug there is a small superimposed button. Total height 197 mm. Diameter of mouth 120 mm. Height of collar 34 mm.

Ware and surface grey.

The Pan Shan hills.

The magnificent burial grounds of the Pan Shan hills were fully described both topographically and as to their mortuary furniture in the twelfth chapter, to which the reader is referred for full details.

It is deeply to be regretted that most of the graves had been rifled by the local population before my arrival and that I was able to excavate only one of the remaining graves.

Pl. 199 gives a view of this burial at Pien Chia Kou. The reader is advised to compare this photograph with the plan fig. 25.

The main features are: the skeleton is that of a man, about forty years of age, lying on the left side in a pronounced hocker position. At the feet and behind the back there were standing seven painted urns. The eighth painted urn stood in front of the face. Before the forehead and outside the crown of the head there were four coarse unpainted pots, two stone axes and two grinding stones.

At the largest of these burial grounds, named Wa Kuan Tsui, I excavated at the edge of the area dug through by local men a skeleton (fig. 26). The position of the bones seems to indicate another hocker burial with a stone axe outside the skull and one, possibly two, fragments of a pot in front of the skeleton. It is, however, uncertain whether the find was undisturbed.

By purchase from the neighbours, specially an old Chinaman living in a cottage close by Wa Kuan Tsui, we obtained a large number of stone axes and other objects said to have been found in the rifled graves. Among these things there were

pendants of turquoise and string beads, as well as a number of jade objects, including such specifically Chinese types as Yuan and Yuan-Huan rings, a ring in three segments and a Tsung.

The Chu Chia Chai cemetery.

In Hsi Ning Hsien, at the village of Chu Chia Chai, we discovered in the late autumn of 1923 a very rich site which I interpret as Late Yang Shao. In the southern part of the village was found a burial place, which we excavated to a considerable extent.

We here excavated at least 47 individual skeletons, but the number cannot be ascertained with certainty on account of local conditions, which we are now going to describe.

The Chu Chia Chai cemetery offers a complex of problems which places it in a group of its own as contrasted with all the other prehistoric burial sites excavated by me. When we compare these burials with those of Yang Shao Tsun, Hsin Tien etc. we find that with the exception of Chu Chia Chai they are all quite regular. The skeletons may be resting upon their dorsal side in an nearly horizontal position, as shown by Yang Shao Tsun and Hsin Tien, or form »Liegende Hocker«, as in the case of the large Pien Chia Kou burial; in all these cases they are quite undisturbed with every element of the skeleton in its proper position and with the mortuary urns standing as they were placed at the interment of the dead.

At Chu Chia Chai the burials are nearly all more or less disturbed, some of them in a very violent way. Some, as for instance Skel. IV, XII, XXVIII, XXXII, XXXXII, are relatively undisturbed, but most of the others are dislocated in a very strange fashion.

The important question is how this confusion of bones arose. One alternative is that the confused order is original, in other words that the dead bodies were cut up and dismembered. During the early part of the excavation I worked upon this hypothesis with vivid recollections of the primary disturbed condition of the bone-heap in the Sha Kou T'un cave in SW Fengtien. In support of this idea reference may be made to Skel. XI, in which I believe that I saw indications of the effect of fire upon one of the human bones, as was so frequently found in the Sha Kuo T'un cave deposit. But the evidence furnished by Skel. XI, is not beyond dispute and it is an absolutely isolated case; I feel therefore that it should rather be ruled out of the discussion. Another fact that might be referred to in this connection is the apparent absence of the feet in Skel. XXI and XXXVII, but I am under the impression that those small bones are among the first to be dissolved and disappear thanks to leaching by acid water, such a process having entirely removed the bones in the Ssu Shih Ting cemetery.

Another alternative is the possibility of later burials or rifling having interfered with graves once quite regular. I think that there is hardly any substantial evi-

dence to support such a view. Intrusive burials or rifling would not have interfered with practically every grave, as is the case at Chu Chia Chai.

After considering these alternative explanations I have come to the conclusion that we have here the effect of a slight landslide, probably caused by an earthquake of moderate intensity. It is well known that Kansu is one of the most active earthquake areas in China, ranking among the principal seismic centres of the world.

In June 1923 I travelled in NE Kansu through the epicentre of the formidable earthquake of December 16, 1920. Here the whole landscape was radically altered by the movement of soil, which took place on a tremendous scale as a surface effect of the earthquake upon the easily moved masses of loess. It would only need a very moderate earthquake to cause a small landslide within the loess soil of Chu Chia Chai.

This explanation seems to satisfy all the actual observations: the effect upon nearly all the burials, though with widely varying intensity, and especially the crushing and overturning of practically all the mortuary urns, a feature that could hardly be explained as the work of any other agency.

Owing to the very disturbed conditions just recorded we are not able to state with full accuracy the position of the skeletons and the objects accompanying them.

Some burials are violently dislocated by the landslide, even to the extent that fragments of one pot were widely dispersed. One burial, Skel. XII, has well retained its position and shows a quite regular horizontal-dorsal position with the head exactly to the N. Five other burials show the same position, though less clearly:

Skeleton	IV	head	N	5°	E.
»	V	»	N	12°	W.
»	XX	»	N	7°	W.
»	XXXIII	»	N	1°	E.
»	XXXIV	»	N	8°	W.

All the other burials are badly dislocated. In none of them is there any indication of a hocker burial. Everything goes to show that the normal position was horizontal-dorsal with the head turned to the north.

These graves contain a very rich furniture, which will be fully recorded in the Chu Chia Chai monograph.

* * *

From the *Ma Chang* stage we have no fully recorded graves.

* * *

The Hsin Tien stage is represented by two large cemeteries, Hsin Tien A and Ssu Shih Ting, as well as some stray burials.

The *Hsin Tien A* grave field is situated in T'ao Sha Hsien of Kansu province, not far to the north of the big village of Hsin Tien which lies on the river plain of the T'ao Ho valley. Up on the Malan terrace N and E of Hsin Tien village we met several sites representing widely different stages. Loc. C is of Ch'i Chia age. Loc. B is a Yang Shao deposit superimposed by a thin cover of Hsin Tien age. Loc. E is a single Hsin Tien burial containing unusually rich and fine furniture.

Hsin Tien A is the burial site we shall now describe. Situated 800 m. N of Hsin Tien, on the river-plain, is the small hamlet of Kuo Chia Chuang. On the partly eroded Malan terrace, at an altitude of 33 m. above Kuo Chia Chuang, there is on a comparatively level cultivated field the burial site which forms the type locality of the Hsin Tien stage.

This burial site had been largely rifled by the local villagers before my arrival, and many of the fine Hsin Tien urns which were offered to me in Lanchow certainly came from this site.

We were able to excavate 24 burials (see Pl. 198,2 and figures 56—57). Some of the skeletons were lying in a horizontal-dorsal position, but in several cases the skeleton sloped from head to feet. In four cases this slope was 20—37°. In two instances I have noted »sloping steeply». In most cases the direction of the skeletons is N—S with the head to the north. 3 individuals are female and 7 male, the rest being children or uncertain.

None of the interred was older than 50 years. 8 were between 30—50. 7 were between 10—30, and 5 below 10 years old.

One skeleton has some red pigment on the left femur. Six others had reddish-brown on the bones.

In one case there was only one pot, 16 burials had 2, and in 7 cases there were 3 pots (all near the head). Other furniture exceedingly poor: one skel. had two small copper objects at the pelvis, another a stone spinning whorl near the left hand.

Ssu Shih Ting.

This is the second large cemetery of the Hsin Tien stage. It is situated opposite T'ao Sha city on the left side of the T'ao river on a sloping escarpment of the Malan terrace overlooking the river.

On this sloping terrace we excavated 20 graves, in which the human bones were almost completely dissolved. Only fragments of some limb bones remained, but the position of the head and the direction of the skeleton could be traced thanks to a slight alteration of the colour of the soil.

The direction of the skeletons varies considerably from the head towards the west to the head towards the north.

1—3 urns were standing near the head, as was the case in the Hsin Tien A

burials. There are only two differences in the burial customs: in Ssu Shih Ting there were in 10 graves a heap of stones behind the skull, and in 5 graves there were flat river pebbles placed as lids on some of the pots.

Skeleton 3 had a stone object placed near the right arm.

Ssu Wa Shan.

On the west side of the T'ao Ho, 20 km. S of Titao city, is the village of Ssu Wa Shan at the base of a low terrace.

Here my men Chuang and Li excavated 8 burials, representing the Ssu Wa stage, which follows next after the Hsin Tien time.

Here too, very little was left of the bones, so that little more can be said about the burial customs beyond that there were 1—6 pots in each burial.

Skeleton 1 had, besides a small clay tripod, a stone «axe» and a copper armlet.

Skeleton 2 besides six urns, a bone object and

Skeleton 3 besides two urns and one tripod, two goat horns.

The Ch'ia Yao site.

Ch'ia Yao is a small hamlet in Hsi Ning Hsien, 7 km. N of Chu Chia Chai. On the NW side of the village were found 12 burials, and NE of the village a skeleton, all representing a stage of its own named the Ch'ia Yao stage. The skeletons rest in the regular horizontal-dorsal position with the head to W in somewhat varying directions, as shown by the diagram fig. 64.

The varied furniture, consisting of urns and objects of stone, bone and bronze, is recorded in the chapter on the Ch'ia Yao stage. Specially noteworthy facts are: the occurrence of red pigment on the bones of one skeleton and two lumps of red stone above the pelvis of another. Another characteristic feature is the association of perforated phalanges of small ruminants with several of these burials.

At Hsia Hsi Ho, just NW from Ch'ia Yao, were found some graves of the same period.

The Sha Ching S grave field.

In the southern part of western Gobi outside the Chen Fan oasis we made excavations in a very rich grave field, where we located 44 burials. As shown in fig. 73, these skeletons rested very regularly with the head to the N and in most cases in a horizontal-dorsal position. One is horizontal dorso-lateral. Another horizontal ventro-lateral.

Several skeletons have a reddish-brown stain, mostly on the skull. Two skeletons are marked «probably female». 13 skeletons are certainly males and 4 «probably males».

Not one of such dead as allow of age-determination was much above 40 years. 10 are marked «adult». 3 were children under 9 years.

The very rich furniture is recorded in the chapter on the Sha Ching stage.



Fig. 96. Incisions upon the bone knife Pl. 41,2. Nat. size.

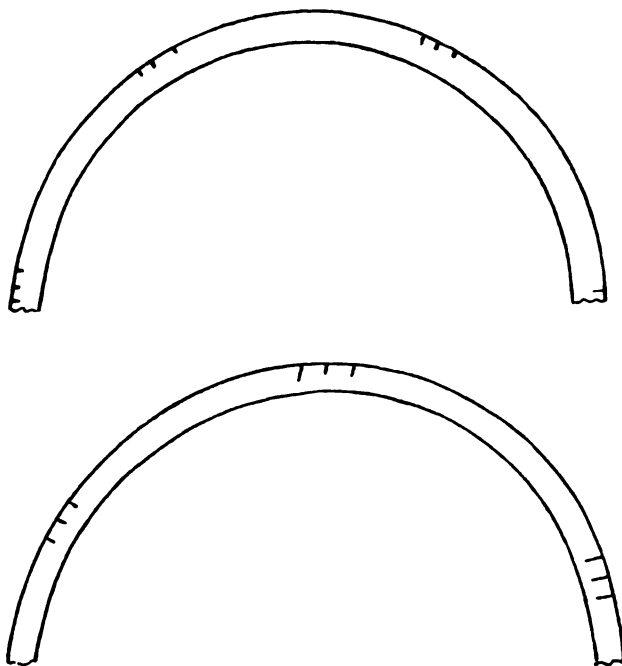


Fig. 95. Incision marks upon the armlet Pl. 40,5. Nat. size.

28.

CRYPTIC MAGIC.

One day when I was working on the Lo Han T'ang W. specimens I noticed on the half of an armlet Pl. 40,5 (K 2170: 20), on each side, groups of short incised furrows. The length of these furrows is 1,5—3 mm., the width only the fraction of a mm. In each of these groups there are three such incised lines, and there are three such groups on each side, possibly with the beginning of a fourth group to the right of the upper side in fig. 95. These groups of three minute incised notches are repeated along the rim with a slightly varied distance of 40 mm. (measured in a straight line), apparently making six groups of threes all round the circumference.

Some of these groups of incisions are faintly visible on the photograph Pl. 40,5, one group on the upper and three on the lower margin.

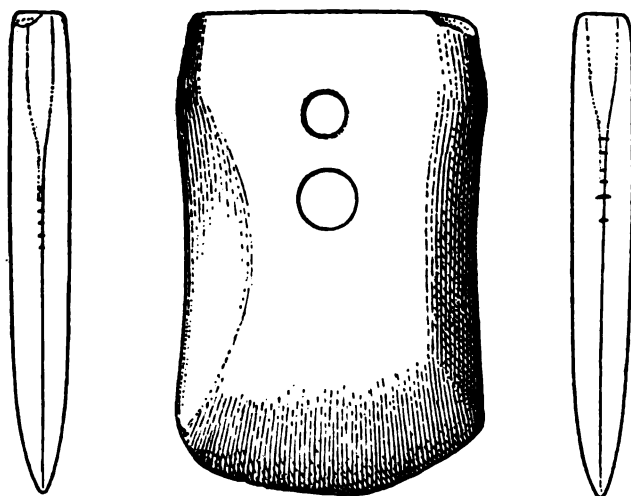


Fig. 97. Incisions upon the ceremonial stone axe K 2394. $\frac{2}{3}$ of nat. size.

These minute notches cannot have served a practical purpose and they are too small to have formed a decorative pattern. Consequently we are forced to guess that they represent some kind of numeral magic.

From the Lo Han T'ang W site we also possess a slender bone knife (Pl. 41,2 K 2170: 26), which has on its back the same type of incised notches as we have observed on the armring just described. One of these groups consists of three long, diverging incisions, visible on both sides. The others are small notches, in all seven groups (fig. 96) as

3 2 3 3 3 2 3

As seen both from the figure and from the above diagram, there are in all seven groups with 3 notches in five and 2 notches in two. Only the central group is easily visible, all the others are extremely small.

At Hsia Hsi Ho in Hsi Ning Hsien of Kansu we bought a thin stone axe (K 2394) with square cut neck and two holes made by cylindrical boring. The rock, which is not very hard, is black with dark-grey spots. Length 94 mm. Width 59 mm. Thickness 10 mm.

This »axe» is to be considered a surface find and nothing positive can be stated as to its age. In this area we have traces of three prehistoric periods: Ch'i Chia, Ma Chang and Ch'ia Yao, but we cannot with certainty connect our axe with any of these provinces.

The specimen is shown in three views in fig. 97. It is clearly seen from the two side views that there are on each side six distinct but very minute notches.

* * *

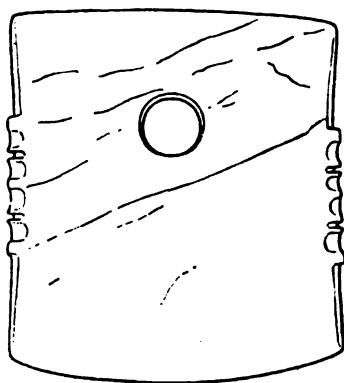


Fig. 98. Ceremonial jade axe (after Laufer).

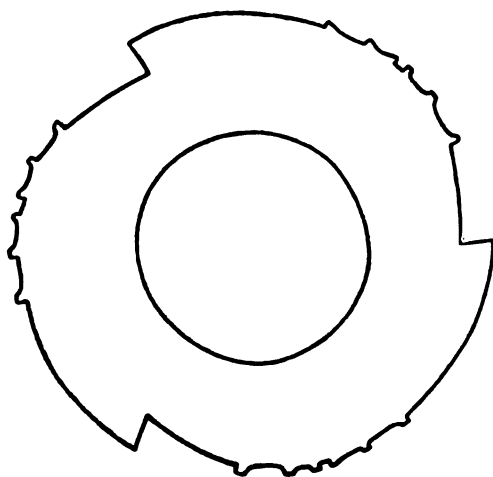


Fig. 99. Jade Instrument (after Laufer).

In our 29th chapter, «The Yang Shao culture compared with historical China», we shall see how intimately the prehistoric jades and other stone objects are related to jade instruments of the early dynasties.

With a knowledge of this fact it was natural that I should make a search for similar phenomena among the jades of dynastic periods. It then struck me that on flat perforated jade «axes» with square neck there occur very minute notches and dents at the very place where our Hsia Hsi Ho specimen has the six notches. For comparison I first refer to fig. 118, illustrating to the right an object from Laufer's «Jade», page 43 a, «hatchet of yellow red-spotted jade». Concerning the dents and notches on the sides Laufer remarks: «the peculiar indentations in the lateral sides betray the ritualistic character.»

In this case, 5 notches (large and small) and 6 dents replace the six notches of the Kansu specimen.

Fig. 98 is borrowed from Laufer's «Archaic Chinese Jades» Pl. IX,1 and is styled «notched ceremonial axe head». Here are 7 dents and 6 notches (of different types).

These minute indentations are not confined to the perforated ceremonial axes; In fact they crop up in varied kinds of jades.

Fig. 99 from Laufer's «Jade» is an annular «jade astronomical instrument» with three groups of six dents in each.

Fig. 100 from Salmony «Carved jade of ancient China» Pl. XX,2 is a «deity» in light green jade with a hairdress of six dents in three groups of two.



Fig. 100. Jade figure (after Salmony).

* * *

In my «Preliminary report on archaeological research in Kansu», 1925, page 14, I described from the Chu Chia Chai grave field in Kansu, Hsi Ning Hsien, a kind of minute bone plates «which possibly represent a primitive script or otherwise record some abstract ideas connected with the dead».

Some of these small bone plates have crosses, as shown l. c. fig. 3 c. Others have one, two or three indentations, as shown in our fig. 101. It seems quite likely that these indentated bone plates, together with the objects described above, may belong to a system of numeral magic expressed in notches and dents of very minute size.

From the Lo Han T'ang site, which brought us the first two instances of cryptic magic, the notched arm-ring and the notched bone knife, we have to report another strange feature that may have to do with the same group of ideas. In Pl. 43,5 we have a sherd of painted pottery on which every one of the three large round dots have, close to their side, a minute round dot, very carefully made. The three coincidences are too uniform to be purely accidental.

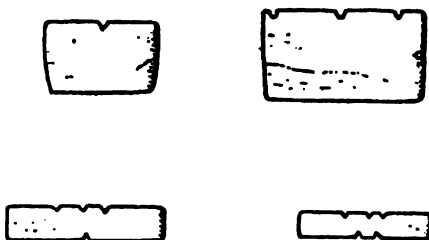


Fig. 101. Incised bone plates. Nat. size.

* * *

As a final remark before closing this chapter I wish to call attention to the minute mammal figures of our Pl. 194,1 and Pl. 195. These animal figures are inserted as cryptic accessory elements into a strongly outlined geometrical design with which these tiny animal figures have no apparent connection. As they seem to represent domestic animals (sheep and cattle?) and are associated with sun-wheels and lightning symbols, they seem to belong to a fertility cult.

29.

THE YANG SHAO CULTURE COMPARED WITH HISTORICAL CHINA.

My first paper announcing the discovery of the prehistoric village at Yang Shao Tsun bore the title «An early Chinese culture». This headline is a programme that has never been contradicted.

During the following years 1923—24 I extended my reconnaissance to Kansu and there made unexpectedly rich finds, which diverted my interest into new channels. The spiral-decorated Pan Shan urns invited comparisons with Tripolje,

and the painted geometrical designs of the Sha Ching pottery indicated the possibility of other western contacts.

When in 1934 I published the popular volume «Children of the Yellow Earth» I there returned to the heritage which the prehistoric cultures had handed down to historical times. In chapter 12, «Ancient implements and vessels», I summed up the earlier comparisons between stone implements and modern tools, adding some fresh finds, and in the last four chapters, «Fecundity rites, hunting magic and death cult», «Aphrodite's symbol», «The symbolism of the Pan Shan graves» and «The Yang Shao civilization» I tried to explain along the lines of world-wide symbolism and Chinese folk-lore the painted designs of the Pan Shan urns and to outline the characteristics of the Yang Shao culture, which seems to form a threshold to the historical Chinese civilization.

During the preparation of the present volume, while studying the jade objects from the prehistoric sites, I have found many new contacts — also from the Yang Shao of Kansu — with historical China, and at the same time I have found evidence leading to a revision of my Kansu chronology and which has made the correlation with the early dynasties more intelligible.

Upon now returning to the features of the prehistoric cultures which link up with historical times I venture to assume that what I have written on these topics in «An Early Chinese culture» and «Children of the Yellow Earth» is already known to the reader. Unnecessary repetitions are thus avoided as far as actual observations are concerned. As for the symbolical meaning of pottery designs and the shapes of stone objects, I have here left these alluring problems quite untouched. To confer upon our simple undecorated stone rings and chisels such titles as «symbol of Heaven» or «symbol of Imperial power» (used for certain jade objects) seems unfounded, specially as such a concept as «imperial» may never have had any possibility of developing within the local clans of prehistoric peoples.

On the whole I have here striven to eliminate slightly founded slogans in favour of the more solid substantial testimony of the objects themselves.

Vessels.

The Ting tripod. In E. Ch. C. Pl. VII,5 I have illustrated a clay tripod from Yang Shao Tsun and called attention to the fact that these vessels «show a striking likeness to a cooking pot of clay such as one can buy today for a few coppers in the Peking streets».

A vessel of this type (K 6240 from Yang Shao Tsun) is reproduced here in fig. 102a side by side with a bronze tripod (102 b) of the Yin dynasty belonging to the Malmö museum. The characteristic decor of Yin design is omitted in the drawing, as it is here a question of exhibiting the likeness in *shape*, not in decor. The two large vertical handles are a novelty connected with the bronze technique. The side-lugs that are useful for the clay vessels would have been out of place on a richly decorated bronze Ting.

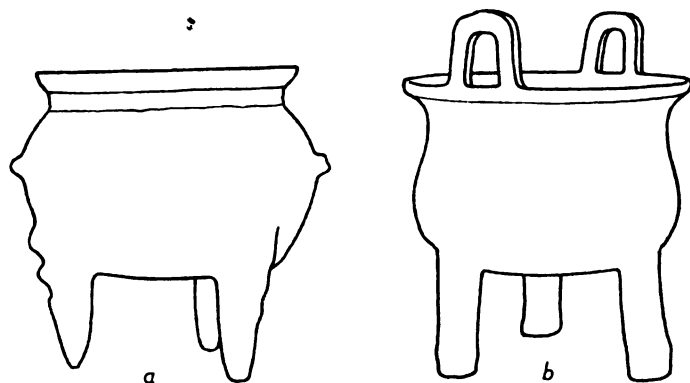


Fig. 102. Yang Shao Ting of clay (a), Yin bronze Ting (b).

Fig. 103. Ssu Wa Shan clay Ting (a), modern brass Ting (b).

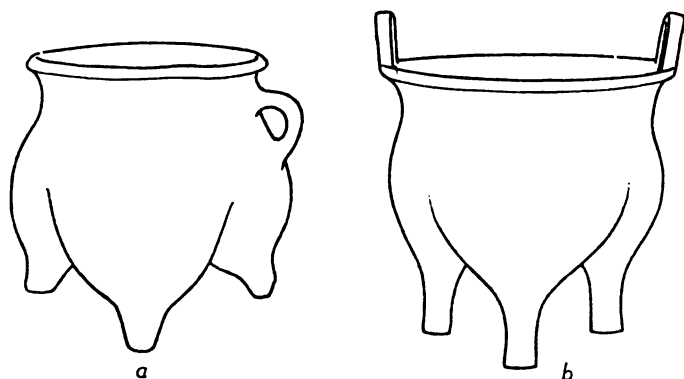
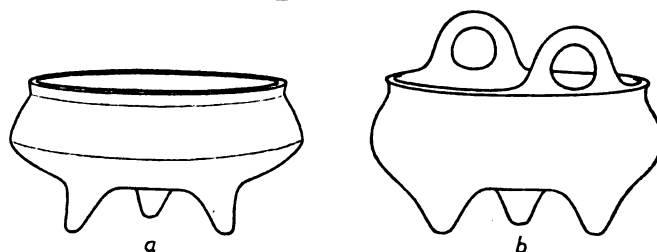
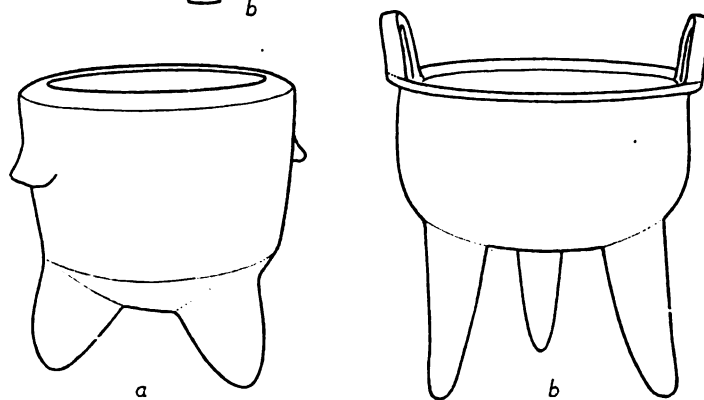


Fig. 104. Clay Li (a) from Hui Tsui (Kansu early bronze age), bronze Li of Yin age (b).

Fig. 105. Clay Li-Ting from Pu Chao Chai (a), bronze Li-Ting (b), collection of H. R. H. the Crown Prince of Sweden.



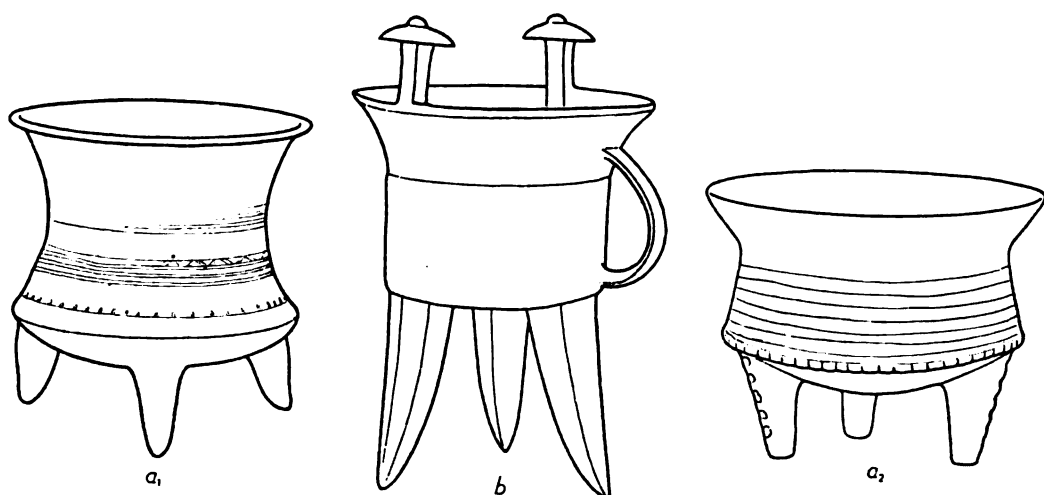


Fig. 106. Clay Kia (a₁) Mueller collection, (a₂) Chin Wang Chai. Bronze Kia (b), Lundgren coll.

In the Ssu Wa Shan graves (Late Bronze Age) were found low, flat, small, clay Ting which in shape are strikingly similar to the simple brass Ting which are bought cheaply in Peking and used as ash-trays.

Fig. 103 a illustrates such a Ssu Wa Shan clay Ting compared with a modern brass Ting 103 b.

The Li tripod. We have devoted an entire chapter to the study of this remarkable vessel and exemplified, with numerous beautiful prehistoric specimens, the wide variety in shape of this vessel, which we have designated as the symbol of Chinese art from prehistoric stages up to modern times.

The most common Li of the Yang Shao time have in their high and slender build no counterpart in historical objects.

In the bronze age of Kansu there occur Li with strongly swollen legs which fit in well with bronze Li of the early dynasties. Fig. 104 a depicts a clay Li from the large Bronze Age dwelling site of Hui Tsui in T'ao Sha Hsien of Kansu. Side by side we have figured a bronze Li (104 b) of Yin (Karlgren: »Yin and Chou» Pl. V A 196). Here too the laterally placed handle of the clay specimen is replaced in the bronze counterpart by handles at the rim.

Li-Ting. This is a type of tripod established by Professor Karlgren for vessels with Ting-like body but with hollow legs. The best bronze specimen is fig. 105 b belonging to the collection of H. R. H. the Crown Prince of Sweden. There are no close prehistoric counterparts. Fig. 105 a represents a clay tripod, K 6617 from Pu Chao Chai. It has a high body and very short legs. It is interesting to note the transfer of the side lugs to the rim in the bronze specimen.

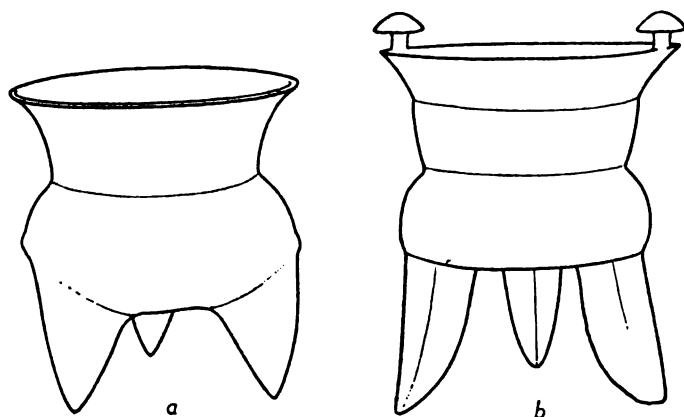


Fig. 107. Pottery Kia (a) from Pu Chao Chai. Bronze Kia (b). Bluett collection.

Kia. There exists another Li-Ting which on account of the appendices has acquired the name Kia. There are a number of prehistoric counterparts to this bronze vessel. As this contact between prehistory and historical times is but little known, we have reproduced two groups of parallels.

Fig. 106 b is a bronze Kia from the Lundgren collection, Stockholm. Corresponding to this specimen is 106 a₁ a clay vessel in the Mueller collection, Peking, and also 106 a₂, our K 6100 from Chin Wang Chai, in Ho Yin Hsien of Honan. The latter specimen is Late Yang Shao. The Mueller specimen is probably Ma Chang of Kansu. Our second series is fig. 107 b, a bronze Kia from the firm of Bluett in London. 107 a, our K 5901: 23 from Pu Chao Chai in Honan, corresponds to this bronze.

Hsien. In E. Ch. C. page 61 I described a clay vessel with perforated bottom and a heavy crust of kettle-fur on the bottom and the basal part of the side-wall. This coating can be explained only by assuming that the pot was used for some kind of steam boiling when its basal part was placed in boiling water. The requirements of the steam heater are well fulfilled by a Li tripod from the same locality, Pu Chao Chai. This vessel has on the inside of the neck a ring-shaped platform which can only have served as support to a vessel placed over the Li. On these assumptions I have combined the two vessels as shown in fig. 108 a, and for comparison I give an illustration of a bronze Hsien (fig. 108 b) from our collection (K 11,002: 3). According to the Chinese antiquarians the Hsien was a steam-boiling design consisting of a Li and a superimposed pot with perforated bottom. As a rule the bronze Hsien have both vessels combined in one piece, but there are statements to the effect that they were sometimes separate.

I have found several pots with perforated bottom but only this one Li with the characteristic outside and ring-shaped platform.

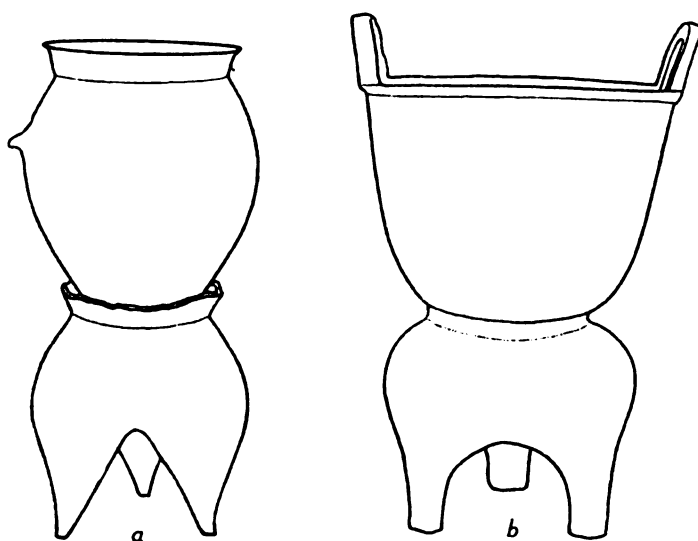


Fig. 108. Two Pu Chao Chai vessels combined to a Hsien (a). Bronze Hsien (b).

Tou. In E. Ch. C. I illustrated (Pl. XV, 2) and described a remarkable high-footed piece (K 5902: 4). When dealing with the black pottery, I have compared this specimen with Tou-shaped clay pieces from Cheng-tzu-yai (Fig. 19). I here outline the same piece in fig. 109 a to compare it on the one hand with a bronze Ku from Anyang (K 12,474) fig. 109 b and on the other with a clay Tou of the Han dynasty (K 6097) fig. 109 c.

There is also a deep-seated bottom in the bronze Ku, and there are specimens with small perforations in the lower part, slightly reminiscent of the circular holes of 109 a. From large fragments we have been able to reconstruct other Yang Shao vessels like 109 a, and one of them has numerous holes in vertical rows.

A highfooted specimen from Yang Shao Tsun is reproduced here as fig. 110 a and compared with a bronze Kuei of Yin age, fig. 110 b.

It is hardly necessary to recall that a combination of our fig. 19 with fig. 109—110 also demonstrates contacts not only with Yang Shao specimens but also with Cheng-tzu-yai specimens and archaic bronzes.

Vessels with pointed bottom. We have devoted a special chapter to the study of vessels with pointed bottom occurring in the Yang Shao deposits of Honan, and to a lesser extent also in Kansu. Here it will suffice to recall that already in E. Ch. C. page 68 I have reported the existence of a similar modern vessel. This I noticed in May 1921 when I made a boat journey on the Yellow River between the provinces of Honan and Shansi. It was tied hanging to the mast and contained oil (fig. 123 c). It has a brownish yellow to brownish red glaze, and this kind of vessel was said to be manufactured at Kuang K'o in Hsin An Hsien on the Yellow River.

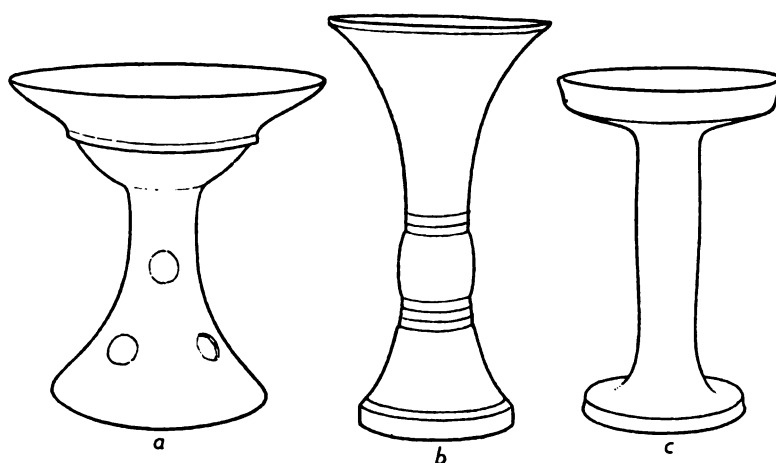


Fig. 109. Pottery highfooted vessel (a) from Yang Shao Tsun, bronze Ku (b) from Anyang, pottery Tou (c) of Han age.

Oracle bones from Anyang and early bronze vessels bear archaic characters for vessels with pointed bottom. In fig. 123 we have for the sake of comparison drawn to the same size (a) a grey clay vessel from Yang Shao Tsun, (b) a pictogram on an Anyang oracle bone and (c) the modern vessel found on a boat of the Yellow River.

Jade.

Upon now turning to the use of jade in prehistoric China I feel it my duty to call attention to the fact that the penchant for, not to say the worship of jade, the substance itself, seems to have formed a bond that links prehistoric and dynastic China together, differentiating the Chinese race from the rest of mankind. Other ancient high cultures liked and used jade to a certain extent, but only with the Chinese did the mysterious *Yu* become a nation-wide craze covering a good four milleniums of cultural development and not abating even in the midst of modern revolutionary readjustments.

It is true that the Chinese confer upon this mineral mystical powers which make the jade pendant beneficial to the wearer, but I believe that the dominant rôle of this mineral in Chinese art is due rather to the liking of the Chinese mind for refined and delicate effects. This semi-precious stone is a friend hard to acquire but never lost. At first sight this dull stone seems rather indifferent, not to say refractory. But life-long study will hardly suffice to reveal all the qualities of this material, which occurs in endless variations.

When emphasizing here the partiality of the Chinese for jade I think it only fair to place at its side turquoise as a lesser servant, which, so far as we can judge at present, appears in Chinese art history just as early as jade.

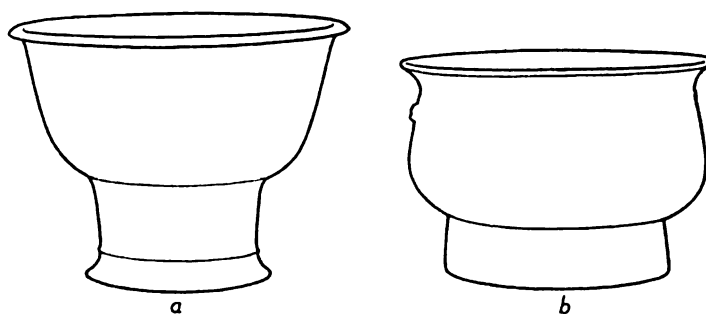


Fig. 110. Pottery highfooted vessel (a) from Yang Shao Tsun, bronze Kuei (b) Yin age.

Tools of jade. It is evident that jade was used by the prehistoric Chinese principally for making objects of symbolical significance and for personal adornment. There is however a group of prehistoric jade which links up with the ordinary furniture of the Yang Shao sites. Among these we should first take note of the small chisels of Pen shape. In Pl. 73 figs. 1, 2 and 9 are such small jade Pen from Yang Shao Tsun, and figs. 7 and 8 of the same plate similar Pen specimens from Pu Chao Chai. For the jade connoisseur it may be interesting to note that the small Pen in fig. 8 is highly decomposed, partly into a white powdery substance, such as we know so well from many specimens of early dynastic jade.

In the Kansu Yang Shao sites there are also tools of jade but of a different shape: long slender chisels with a narrow asymmetrical edge. This small group is composed of Pl. 73,4 from Lo Han T'ang and Pl. 73,5 from Ma Chia Yao. These are both dwelling-site finds, so that there is little justification for interpreting them as votary gifts intended for the dead, while exactly similar chisels are found in the same sites made of ordinary stone, preferably a black schistose rock. The two mentioned jade chisels, widely different in space and slightly differing in age, consist of a variety of jade such as I cannot remember from any other specimen. It is uniformly grey, and as such somewhat monotonous, but upon closer study it reveals a quality recalling the surface of fine light-grey silk.

Similar in shape is Frontispiece 2,12, a slender asymmetrical chisel of an exquisite dark green jade, in places turning into nearly black. This specimen came from the large grave-field of Wa Kuan Tsui and must thus be interpreted as a mortuary object.

The beautiful jade axe Pl. 74,1 was bought at Hsin Hsien in central Shansi, and we know nothing about the mode of provenience. To the same type I am inclined to refer the fine specimen which Professor Sirén has reproduced in a colour-plate facing page 120 of his recently published «Kinas Konst» (in Swedish). Sirén's specimen belongs to his own collection. He marks it down as Early Chou but I am strongly inclined to interpret these two jade axes as prehistoric, because in shape they fall within a group of very numerous axes of ordinary stones which

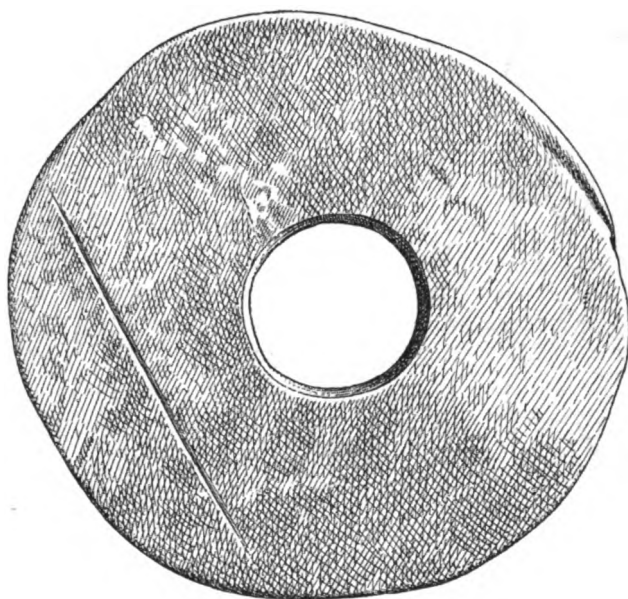


Fig. 111. Jade Pi (after Pope-Hennessy).

are most common on the Sino-Mongolian borderlands. I cannot directly prove that this axe, which I have named »The northern rounded axe», is prehistoric, but this is quite likely, especially as it is related to the Pan Shan axe of well-defined Yang Shao age.]

Annular jade objects. In his treatise on Jade Laufer writes (page 154): »There are three kinds of annular jade objects, called *pi* (Giles No. 8958), *yüan* (No. 13757) and *huan* (No. 5043). The former is a disc with a round perforation in the centre, the two latter are rings. The difference between the three is explained in the dictionary *Erh ya*: »If the flesh (i. e. the jade substance) is double as wide as the perforation (*hao*), it is called *pi*; if the perforation is double as wide as the jade substance, it is the ring *yüan*; if the perforation and the jade substance are equally wide, it is a ring of the kind *huan*.» This is a good point for guiding collectors in defining their specimens, although, as measurements on actual specimens show, these definitions are by no means exact, but to be taken *cum grano salis*. The Chinese, also, determine these three groups from the general impression which they receive from the relative proportions of the dimensions of the ring and the perforation.»

In my paper on the Sha Kuo T'un cave I have described a number of marble rings which very nearly fit in with the definition of the Yuan rings, and they were there described under that name.

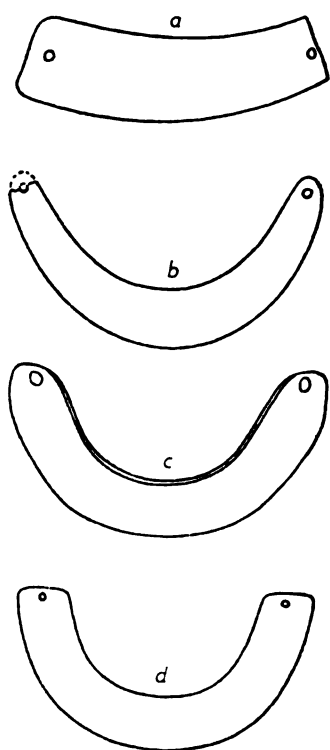


Fig. 112. Crescent-shaped objects:
(a) boar's tusk, Pu Chao Chai,
(b) marble, Pan Shan, (c, d) jade,
after Laufer.

The jade rings which I brought home from Kansu, and which are described in the chapter »Finds on the Pan Shan hills» Frontispiece 1 and Pl. 71—72, are Pl. 72,6 a true Huan and the other transition between the Huan and the Yuan, an intermediary type which I have named Huan-Yuan. The characteristic feature of the prehistoric Huan-Yuan is that they are entirely undecorated and that they are rather irregular in shape with deep faults on the flat sides.

The type Pi has never been noticed in our prehistoric sites. But there is in Pope-Hennessy: »Early Chinese Jades», Pl. XI a primitive Pi, irregular in outline and with a deep miscarriage in the cutting. It is dated »possibly of the Shang dynasty». To my eye it has all the characteristics of a prehistoric specimen (fig. 111).

Disc in three segments. Among the objects collected from the Wa Kuan Tsui graves there is a marble specimen like a Yuan ring but cut in three segments and with holes for tying the three parts together (Pl. 72,5).

Quite similar discs cut in jade are depicted in Laufer's »Archaic Chinese Jades», 1927, Pl. X, 2 and Pl. XIII, 2. They are both assigned to the Han period. We note from Laufer's description of

these two specimens that: »The holes are all drilled from one side and double as large on the side drilled as on the opposite side.»

This is exactly the way drilling was carried out by prehistoric tribes. It may be questioned upon what authority these things are dated Han. I am under the impression that objects actually prehistoric have been given dynastical dates simply because nothing was definitely known about prehistoric jade in China.

Crescent-shaped marble object. In our Pl. 72,1 there is shown a marble object with holes at both ends and an abortive boring at the midst. I have placed this specimen with the convex side down because we have from other sites similar pieces cut in boar's tusks. I imagine that the tusk pendants were worn on a string and rested on the breast under the chin.

But it should not be left out of account that Laufer: Jade, Pl. XXXVIII, 6 illustrates an object somewhat resembling our Specimen as a »lip-amulet» (why then the holes?).

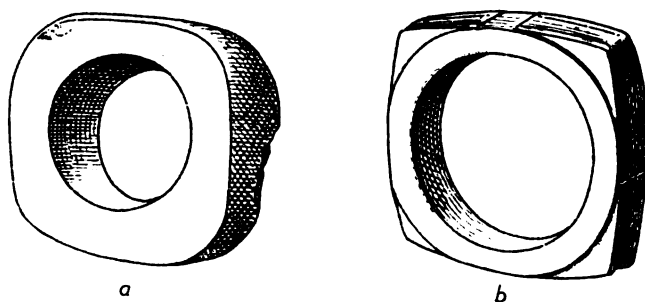


Fig. 113. Tsung, (a) Pan Shan, (b) Eumorfopoulos collection. (After Pope-Hennessy).

Other similar specimens in Laufer's *Jade*, page 200, are termed »Jade head-pieces of girdle pendants». Whatever was the right position of our Kansu specimen, one thing seems indisputable, that we have here a further parallel between prehistoric and dynastic objects (fig. 112).

Tsung. Among our objects from the Wa Kuan Tsui graves there is one relatively insignificant jade piece Pl. 71,4 with a large central opening and a rounded quadractic outer contour. The most primitive Tsung must have been shaped like this at a time when the artisans had not yet developed the skill of exact and complicated carving. Similar low Tsung, but decorated and of advanced dynastic age, are seen in figs. 2 and 3 of plate XXXII in Pope-Hennessy, »Early Chinese Jades». (Fig. 113).

If, as seems most likely, our Wa Kuang Tsui jade ring is really a primitive Tsung, the occurrence of this cosmological emblem is certainly one of our most significant contacts between prehistoric and dynastic times.

The Kueh ring. This ring, which is of moderate size, has a narrow slit running radially from the central hole to the outer margin. Laufer calls it »the incomplete ring» and illustrates a richly decorated specimen »Jade» page 216. Salmony: »Carved Jade of Ancient China» calls it a slit disc and in Pl. LXI, 3 depicts a specimen decorated with interlaced spirals.

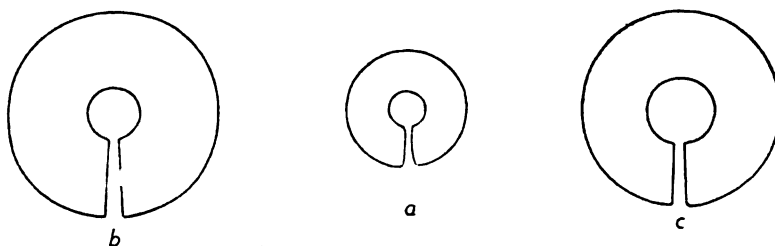


Fig. 114. The Kueh ring: (a) clay, Pu Chao Chai; b, c jade, after Salmony and Pope-Hennessy.

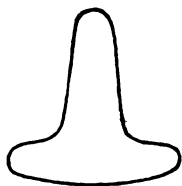


Fig. 115. Cross-section of stone ring with thickened inner margin. Pu Chao Chai.



Fig. 116. Jade ring with thickened inner margin. (After Pope-Hennessy).

Pope-Hennessy: »Early Chinese Jades» Pl. XXVIII, 1 represents another specimen with geometrical design. All these are jade specimens.

In the protohistoric sites of Indochina these Küeh rings cut in various stones are very common.

Only once did I come across one of these very characteristic rings in a prehistoric site, namely at Pu Chao Chai, where a small clay ring of this type was found (K 3002: 76). Fig. 114 gives (a) the Pu Chao Chai ring, (b) the one reproduced by Salmony (l. c. Pl. LXI) and (c) the other illustrated by Pope-Hennessy (l. c. Pl. XXVIII).

Ring with thickened inner margin. From Yang Shao Tsun we possess a number of clay rings with the inner margin considerably thickened. In addition to these we have fragments of two large stone rings, both consisting of coarsely crystalline igneous rock with a wide range of colours from the black hornblende to the white plagioclase. One of the rings is shown in our Pl. 20,5. It came from Lung Kuan Hsien in northern China. Another ring, somewhat like the first one, came from Pu Chao Chai (K 1952: 240). It is here reproduced in line-drawing (fig. 115), showing very clearly how the inner margin is flaring on both sides. Such rings from early dynasties are well represented in our collection both in specimens and in photographs. A very good picture of such a ring is shown in Pope-Hennessy: Early Chinese Jades, Pl. XXXII, 1. For comparison a line-drawing is made from this picture (fig. 116).

»Hair ring». Pope-Hennessy, pl. XXXI, 2 reproduced from the Eumorfopoulos collection an annular object cut in deep olive-coloured jade, which is said to be known as a »hair ring». It is here rendered in line-drawing (fig. 117 b) side by side with our ring of black schist from Ma Chia Yao in Kansu (fig. 117 a). The Eumorfopoulos specimen is marked as »possibly of the Chou dynasty». Here then we have a most striking parallel between prehistoric and dynastic objects, provided only that the entirely undecorated Eumorfopoulos specimen is not also prehistoric!

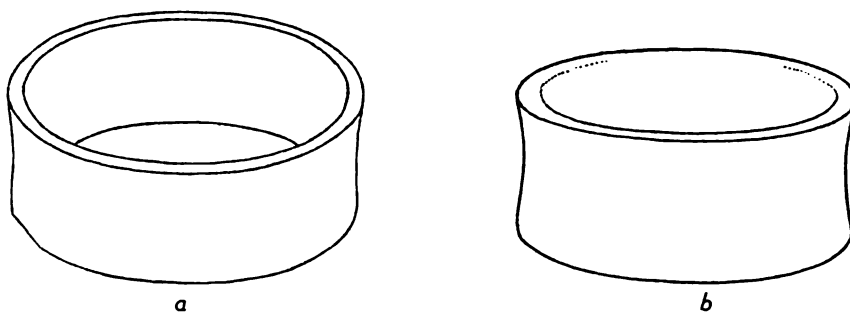


Fig. 117. »Hair rings«, (a) black schist, Ma Chia Yao. (b) Jade (after Pope-Hennessy).

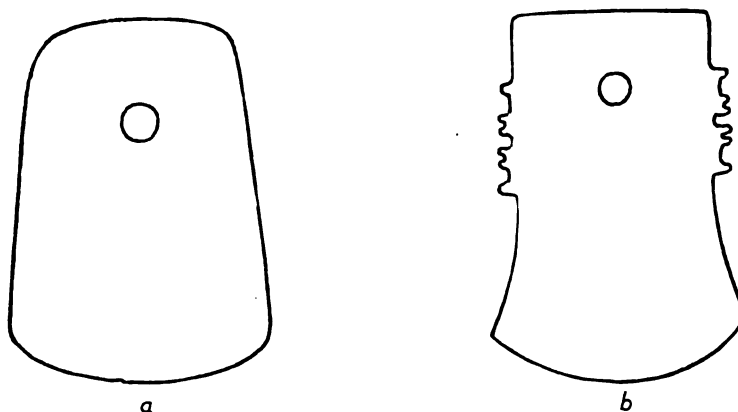


Fig. 118. (a) Stone axe, Shansi, (b) jade axe, Chou dynasty, after Laufer.

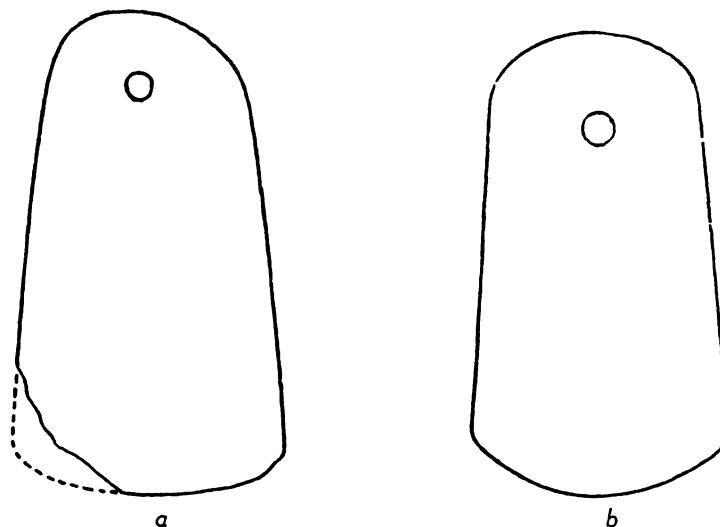


Fig. 119. (a) Felsite axe, Chihli, (b) jade axe, supposed to date from the Chou dynasty.

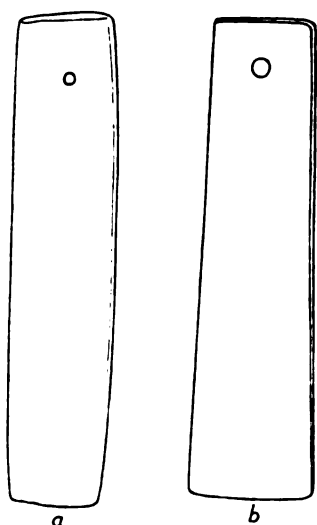


Fig. 120. (a) Perforated stone chisel, Kansu. (b) jade, «symbol of imperial power» (after Laufer).

Ceremonial axes. We have mentioned above two jade axes, our own Pl. 74,1 and the one in the Širén collection. These two axes, which are very similar in shape, belong to our group «Northern rounded axes». They are real axes, whether for work or for battle we do not know. They may have been made for some big chiefs marking their rank, in that way passing into the group of ceremonial axes.

But we have a very large group of axe-like objects (see our Plates 17 and 18), which could hardly have served any utility purpose. They must be placed entirely in the ceremonial group and I have used for them the word «axe» only for lack of a more suitable term.

This group is very numerous. Many are surface finds from northern Chihli. Others were found during our excavations in the Honan sites (among them a fragmentary specimen in dark jade from Yang Shao Tsun Pl. 74,2). Some again were found in the Cheng-tzu-yai site in Shantung (see the report on this site Pl. XXV. In Kansu one was reported from Ssu Wa Shan Skel. 1, Pl. 17,3). Another, of somewhat doubtful provenience, was reported from Ma Chang Yen.

Their mineralogical composition is very varied, but the shape is uniform and simple, they are thin and broad, nearly rectangular in outline with a more or less convex edge and a hole in the posterior half. We have called them «Broad perforated axes».

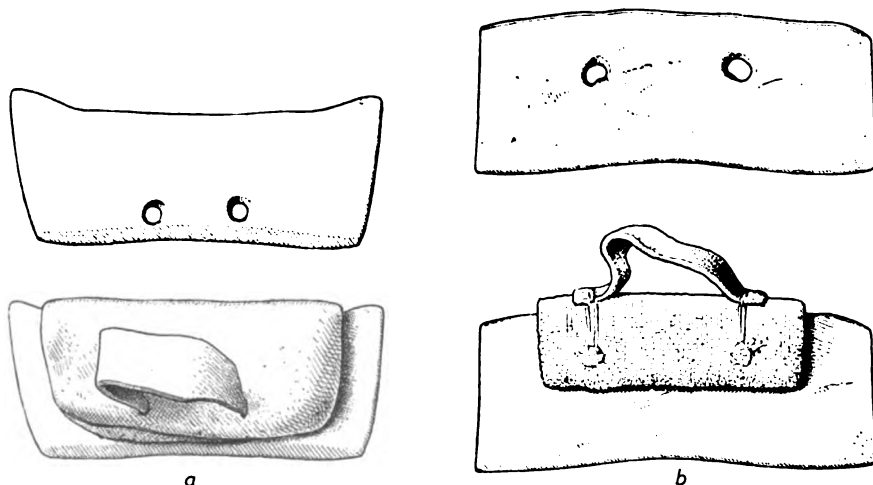


Fig. 121. (a) Lo Han T'ang stone knife (K 11.121) undressed and dressed, (b) modern iron knife, undressed and dressed.

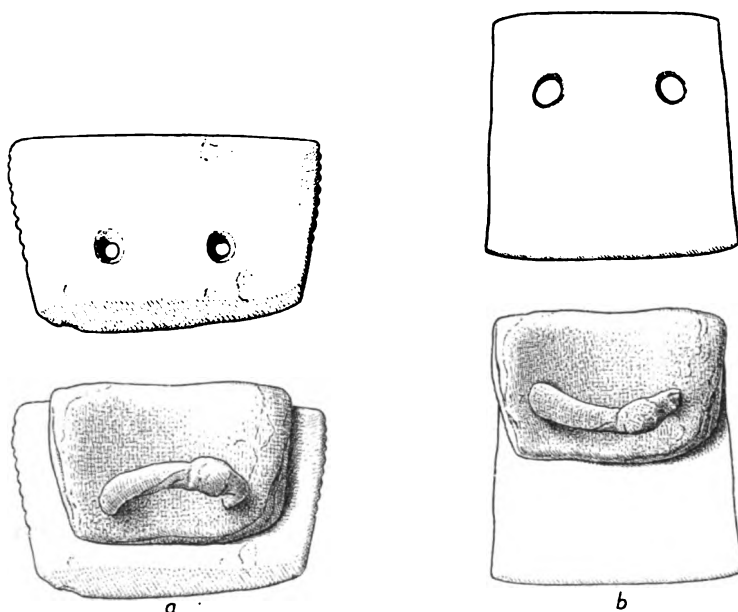


Fig. 122. (a) Lo Han T'ang stone knife (K 11.110), (b) modern iron knife.

Similar axes are reported from Anyang. See Huang Hsun: »Ye chung p'ien yü ch'u tsi». Two of these jade objects are decorated with dentations on the sides, the others are smooth.

Wu Ta-cheng in his famous treatise on ancient jade »Ku yü t'u k'ao» illustrates such a jade hatchet, which is here reproduced (fig. 118 b) side by side with one of our specimens (fig. 118 a). The drawing of Wu Ta-cheng's specimen clearly shows the elaborate dentations of the lateral sides, a feature distinguishing many dynastic specimens from the always smooth prehistoric ones. Wu explains his specimen as being an ancient »dance axe».

Further, from the Sino-Mongolian borderland we have numerous broad perforated axes with rounded back (our Pl. 19). I have here drawn (fig. 119 a) one of our specimens (Pl. 19,1) side by side with a jade axe (fig. 119 b) referred to the Chou period. The latter is taken from Laufer's »Archaic Chinese Jades». Pl. VIII, 2.

* * *

I here compare in line-drawing (fig. 120 a), our specimen Pl. 16,1 with one of Wu Ta-cheng's »chen kuei» (fig. 120 b). To embark upon any dissertation on these simple stone things as emblems of rank would, I think, be quite meaningless. We have to content ourselves with the coincidence in outline.

It is easy to select from the works on Chinese jade dynastic parallels to the

two jade tablets from Wa Kuan Tsui (Frontispiece 1, 3 and 4). But for all their grace these two objects are so simple in shape that comparisons become rather vague.

* * *

In my first paper on these ancient civilisations »An early Chinese culture» and also in »Children of the Yellow Earth» I have described at some length the remarkable and close relations between some types of stone implements used by the Yang Shao people, as the rectangular knives, the stone Pen etc. and the same types made of iron by the Chinese of today and used certainly in much the same way as their ancestors of four milleniums ago cut their food and worked as car-

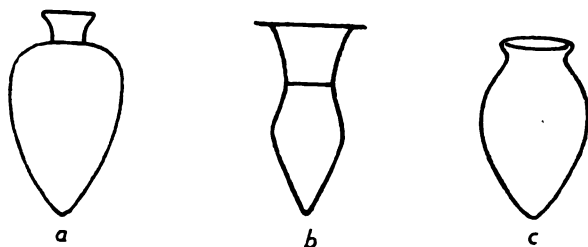


Fig. 123. (a) Yang Shao vessel with pointed bottom. (b) Oracle bone pictogram. (c) Modern pottery urn.

penters. These simple tools are very seldom preserved in bronze, with the result that the distant past, the Stone Age, and modern times meet directly in a surprising concord of still very primitive handicraft.

All these contacts between Yang Shao and modern times

are fully described in the two said publications. There is only one small but very significant detail that was discovered recently.

In the Lo Han T'ang site of western Kansu (Early Yang Shao) very neat stone knives were found, some winged and others incised on both ends. Two of these specimens show a very strange feature. The holes are deeply worn on the side turning towards the thickened back of the knife. This kind of wear can only be explained by assuming that these knives had their backs covered with a strap of leather or cloth in the same way as we see the back of the iron knife of today wrapped round with a cloth strap to ensure a more comfortable grip.

In figures 121—122 we have illustrated, on the one side the »dressing» of the modern iron knife and on the other side the probable way in which the Lo Han T'ang stone knives were »dressed».

30.

FAR EASTERN PROVINCES OF PREHISTORIC PAINTED POTTERY.

When in April 1921 I found Yang Shao Tsun, the first prehistoric site with painted pottery in the Far East, I was entirely untrained for archaeological research and unprepared to meet the new situation. Fortunately I had in Peking access to

the monographs on the excavations at Anau by the Pumpelly expeditions and was deeply struck by the general similarity of those two groups of prehistoric painted pottery.

In order to get the opinion of European scientists on the painted pottery of Yang Shao Tsun I sent to His Royal Highness the Crown Prince of Sweden, Chairman of my Swedish Research Committee, and himself an enthusiastic archaeologist of wide experience, a small number of specimens of the Yang Shao painted pottery.

When His Royal Highness visited London in May 1922 he graciously took the material in question with him and showed it to Mr. R. L. Hobson, the British Museum expert on Chinese ceramics. Mr. Hobson consulted a number of British archaeologists about this new Chinese ware, and after these consultations presented His Royal Highness with a statement, which was forwarded to me and is here reproduced as far as the polychrome pottery is concerned:

»Red pottery with black ornaments.

Clearly the same family of design as on the Aeneolithic pottery found on many sites in the Near East, e. g.:

a) In Babylonia, where it is definitely stated by Dr. H. R. Hall to be pre-Sumerian, i. e. before 3500 B. C.

b) On the eastern borders of Persia.

c) In Asia-Minor, where it would appear to date about 2500—2000 B. C.

d) Anau and Tripolje.

e) Somewhat similar pottery found in Thessaly with objects dating 2000—1200 B. C.»

By correspondence I also consulted Professor Hubert Schmidt of Berlin, who conducted the excavation at Anau and described the archaeological material in the report of the Pumpelly expedition. Schmidt's statements were more reserved than that of the British archaeologists. In my »An Early Chinese Culture» page 39 I summed up Schmidt's statements as follows:

The patterns common to the two regions as shown by my comparative table (Pl. XIII) are few and the similarities are far from convincing.

Apart from the patterns, the comparisons must also be extended to the technique of the ware, the pigments used and the polish of the surface.

Comparison can hardly be made at the same time with Anau I and with Tripolje, as was done by me, because these two cultures are not of the same age.

Before the question of the possible relationship of the Honan polychrome ware with that of the Western World can be successfully tackled, the age of the Honan sites must be known, not only in relationship to more recent Chinese cultural stages but also with reference to the western sites which contain polychrome wares.

»Ich möchte nochmals betonen, dass es immer gefährlich ist, mit einzelnen Mustern der Ornamentik zu operieren; man muss die keramischen Gruppen im Ganzen als Ausdruck eines bestimmten Kunstgeistes nehmen. Beziehungen kultureller und geschichtlicher Art sind erst dann erwiesen, wenn die Gleichzeitigkeit auseinander-

der liegender Kulturgruppen sich aus allgemeinen oder besonderen Verhältnissen ergibt. Die Ornamentmuster reichen natürlich nicht aus, auf Gleichzeitigkeit zu schliessen, wenn nicht andere Umstände, bes. stratigraphischer Art oder einwandfreie Importstücke vorliegen.»

In the same year, 1923, when I published »An Early Chinese Culture«, I started for an eighteen months' journey to Kansu and adjacent parts of Mongolia and Tibet in the hope of extending the finds of painted pottery some distance northwards along the supposed migration route across Central Asia. Unexpectedly rich finds were made, including the discovery of six successive cultural stages ranging over approximately two thousand years. Shortly after my return from Kansu I published a first report on my finds: »Preliminary report on archaeological research in Kansu«. Mem. Geol. Survey of China. Ser. A. N:o 5, 1925.

In this paper I assumed that all the cultural stages established in Kansu were *prehistoric* in the strictest sense, or, in other words, that the latest stage, Sha Ching, was also older than the oldest historical site, Anyang, the capital of Yin which we now date at 1500 B. C.

I soon found that on this point I was fundamentally mistaken. During a new visit to China in 1926—27 I was given opportunities of collecting by purchase, principally from sources in the Sui Yuan area, small bronzes which, following a suggestion made by Minns, we have named Ordos bronzes.

Two collections of such bronzes originating from well-defined localities and probably belonging to two tomb finds were described by Arne: »Die Funde von Luan P'ing und Hsuan Hua« (Bull. M. F. E. A. N:o 5, 1933). The age of these objects was by Arne interpreted so (page 166): »dass die Gräberfunde von Luan P'ing und Hsuan Hua vor der Zeit der älteren Han Dynastie liegen. Die äusserst sparsame Anwendung von Eisen trägt auch zu einer solchen Datierung bei. Aber eine nähere Einkreisung wird vielleicht möglich sein. Die Datierung der Messermünze macht es wahrscheinlich, dass die Gräber älter als 250 v. Chr. Geb. sind. Der von einem Ring umschlossene Hirsch müsste auf Grund von Analogien im Kaukasus auf etwa 400 zurückzuführen sein. Etwas später dürften hingegen die runden gewölbten Bronzebeschläge mit gestrichelter Kante sein. Die südrussischen Gegenstücke rühren von der Zeit um 300 v. Chr. her und scheinen nicht all zu gewöhnlich zu sein. Es ist wohl wahr, dass der Typus lange fortgelebt hat, und dass man in Westsibirien am Flusse Ob, derartige gegossene grobe Beschläge aus Weissbronze gefunden hat, die in das 9. Jahrh. n. Chr. Geb. zu datieren sind. Ich sehe mittlerweile keinen Grund dafür die Erscheinungen im Osten auf den weiten Feldern des eigentlichen Nomadengebietes gegenüber den Analogien im Westen jünger zu machen. Ich halte es also für wahrscheinlich, dass die Gräber bei Luan P'ing und Hsuan Hua nicht später angelegt wurden, als in der ersten Hälfte des 3. Jahrhunderts, dass dies aber möglicherweise schon zwischen 350 und 300 vor Chr. geschehen sei.«

In a paper »Hunting Magic in the Animal Style«, Bull. M. F. E. A. N:o 4, 1932

I gave a general review of the Ordos bronzes and an interpretation of their spiritual meaning.

In reaction against certain gross misinterpretations of the age of the Ordos bronzes, specially by Salmony, Karlgren, with well-dated Huai-bronzes as his starting-point, undertook a sweeping analysis of the dating of the Animal Style as expressed in the Ordos bronzes, »Ordos and Huai», Bull. M. F. E. A. N:o 9, 1937, P. 97—112.

Karlgren condenses the results of his survey as follows: »Already in the 4th and 3rd cent. B. C. there must have existed a neighbouring art along the Northern frontier of China which possessed some of the most salient and peculiar features of what we know as the Ordos art, the Easternmost province of the Eurasian Animal Style. Hence the *beginning of this Ordos art in China's vicinity* cannot be dated later than the 4th and 3rd cent. B. C., though it may have lived on essentially unaltered for many centuries.» (L. c. page 111).

Among the objects brought home from Sha Ching there are certain objects of unmistakable Ordos type, as has been shown in our 21st chapter on the Sha Ching finds. For reasons given in the said chapter I have tentatively dated the end of the Sha Ching stage at 500 B. C.

This gives us a fairly safe point of departure for establishing a tentative chronology of the prehistoric stages in Kansu. At the same time the recent excavations at Anyang undertaken by the Academia Sinica have immensely increased the means of correlating our finds with the earliest historical site in China, the capital of Yin.

During the same years 1928—37, when the excavations in Anyang were carried out, the finds of painted pottery in the Far East greatly increased. Here also, then, when discussing possible cultural connections with the Near East, we are in a much more favourable position than when I wrote my first communications in 1923 and 1925.

In this chapter we shall give a review of the provinces of prehistoric painted pottery of the Far East. Finally, in the next chapter we shall discuss — as far as available facts allow — the relationship of the painted pottery cultures with historical China.

Painted pottery sites of the Liao Tung peninsula, Southern Manchukuo.

In the formerly leased territory of the Kuang Tung and southernmost Liao Tung peninsula a Japanese, Mr. S. Yagi, had about the year 1920 observed stone implements and painted pottery. Such finds were also noticed in the kitchen-middens at Hamacho near Dairen and at Daitai-san, Port Arthur (Hamada and others: »P'i Tzu Wo, Prehistoric Sites by the River Pi-liu-ho, South Manchuria. Archaeologia Orientalis. Vol. 1. 1929).

Under the superintendence of professor K. Hamada and Professor Y. Harada



Fig. 124. Painted urn, P'i Tzu Wo.

the P'i Tzu Wo sites were excavated and surveyed by a staff of Japanese scientists in 1927 and their results are embodied in the above-quoted volume.

In these sites painted vessels of a unique kind were found together with coarse pottery of many varied types and stone implements, mostly of prehistoric types. In the deposit were also found objects of iron and bronze, including Chinese coins ranging from the last phase of the Chou dynasty to the beginning of Han time.

The painted pottery is unlike anything we know from the Far East. Broadly pear-shaped pots with low collar and very narrow base are painted in red, white, and yellow, in diagonal staircase pattern, recalling some types of Amer-Indian painted pottery (Fig. 124).

»These pigments were applied to the ground after the vessels had been baked in kilns and never put in the fire again as they easily fall off from the surface.»

This passage is very illuminating. In contrast to the Yang Shao—Ma Chang urns, which were fired after painting, resulting in decors which are wellnigh indestructible, these P'i Tzu Wo urns are technically in a class with the painted Chinese Han urns, the pigments of which are soft like chalk. In point of time these Liao Tung urns are only slightly prior to Han. Striking and highly interesting as they are, they belong to a late dynastic period when the prehistoric making of durable painted pottery had long ago become a lost art.

Sha Kuo T'un painted pottery.

The Sha Kuo T'un cave deposit located in Chin Hsien of formerly Fengtien province was described in *Palaeontologia Sinica*. Ser. D. Vol. I. Fasc. 1. 1923. A summary of this paper is given in our present chapter 14.

In this small deposit were found in the basal layer three painted sherds l. c. Pl. XII, 5—7 and in layer 2 a much worn piece which was considered not worth illustrating. These specimens were long ago returned to China, so that I must discuss them from the said paper and from memory.

When I wrote the Sha Kuo T'un paper my experience in painted pottery was limited to this cave and to Yang Shao Tsun. I was then struck by the general similarities and did not realize the differences in detail now apparent to my better trained eye.

In a general way the few Sha Kuo T'un sherds are like the Yang Shao painted pottery in ware and pigment. But already in my paper of 1923 I called attention to two differences: the softer pigment in Sha Kuo T'un and the fact that Sha Kuo T'un Pl. XII: 7 is a bowl painted also on the inside. No Yang Shao Tsun bowl was

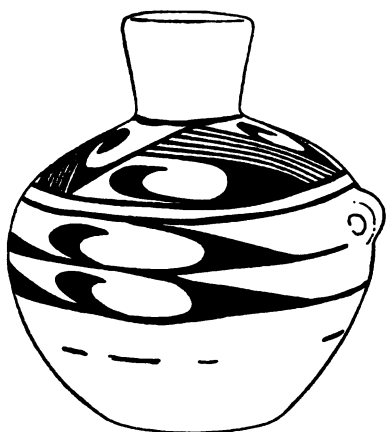


Fig. 125. Painted urn. Hung Shan Hou.

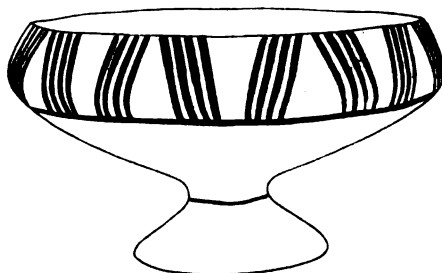


Fig. 126. Painted urn. Hung Shan Hou.

painted on the inside, whereas inside painting is common in Kansu Yang Shao and Ma Chang bowls. But the simple concentric design of S. K. T. XII: 7 is not found on Kansu bowls.

Lugs like S. K. T. text-figure 26 are unknown with the Y. S. T. painted pottery but occur in Kansu.

The S. K. T. unpainted big urn text-figure 13 is in shape strikingly like the Pan Shan painted and unpainted urns.

The abundance of Yuan rings, S. K. T. Pl. VII, is another feature that S. K. T. has in common with Pan Shan. The abundance of beads is a further connecting link between S. K. T. and Kansu. Beads were never found in the Honan sites.

These comparisons are given for what value they may possibly have. The painted sherds from Sha Kuo T'un are too few and too insignificant to tell much more than the fact that a prehistoric pottery culture once existed in this area.

The finds at Hung Shan Hou in Jehol.

As volume VI, Ser. A of the magnificent monographic series *Archaeologia Orientalis*, the Japanese archaeologists published in 1938 «Prehistoric Sites at Hung Shan Hou, Chih Feng in the province of Jehol, Manchukuo.»

The brief but masterly clear English summary was prepared, with the aid of Mr. S. Mizumo, by professor Hamada, but this venerated grand old man of Japanese archaeological research did not live to see the splendid volume completed.

At this place were found two culture deposits of widely different ages.

Painted pottery culture: together with stone implements of many types, mussel-shell rings etc. was found coarse unpainted pottery and fine pottery with a red slip, and painted pottery with geometrical patterns in black or brown pigments.

Figures 125 and 126 reproduce in black drawing two of the complete vessels (H. S. H. Fig. 52).

First of all we should note several connections with Sha Kuo T'un.

The lug of the urn, our fig. 125, has the same shape as the lug S. K. T. Pl. XII, 6 and text-fig. 26.

H. S. H. Pl. XXXIII, 8 has in its two black bands a counterpart in S. K. T. text-fig. 25, but the shapes of the two bowls are widely different.

It is specially interesting to note that the characteristic incised criss-cross design S. K. T. Pl. XI, 2, 3 and 8 recurs abundantly at H. S. H. Pl. XXXVI, XXXVII and XXXIX, 3.

It is not unlikely that Sha Kuo T'un will one day be proved to belong to what we may name from the far richer site the Hung Shan culture.

In H. S. H. p. 60—61 the Japanese scientists have drawn some parallels between H. S. H. and Kansu painted pottery. I find these details not very convincing, but from my intimate knowledge of the Kansu pottery consider it probable that the Hung Shan pottery falls within the range of Kansu Yang Shao or Ma Chang, i. e. 2200—1300 B. C., to anticipate the tentative dating given in the next chapter. The Japanese archaeologists suggest 3000—1500 B. C.

The cist grave culture. This discovery is so important that I quote Hamada's English text (l. c. p. 7):

»The second prehistoric culture in Ch'ih-feng is that of the first Bronze Age, characterized by red-polished pottery and Sui-yüan bronze.

This culture is distributed over the whole of Jehol and the region of the Great Wall. We have found the same kind of pottery at Shih-p'ei-ling near Hsin-ching, Manchukuo, and it has been discovered at sites in both Turkestan and in Altai. The same kind of bronze is abundantly found in the Minussinsk region of Siberia. In its subsequent development the red-polished pottery of Hung-shan became, by a process of Sinicization, unpolished and cord-impressed, and at last turned into grey cord pottery. The stone implements of the site are quite advanced. The perforated axes resemble somewhat a type of bronze axe. The wedge-shaped hammer axes are considered to be a rather degenerate form of this kind. The portable whet-stones were used for the bronze implements. The latter are very abundant: socketed axes, spear-heads, knives, arrow-heads, buttons, ear-rings and small plates. In general these are similar to the Sui-yüan bronzes. Some types of spear-heads, daggers and knives, however, are quite different and seem to indicate a somewhat greater Sinicization. The conical clay spindle-whorls are related to the Sui-yüan bronzes, and not to the clay ones of South Manchuria.

The people of this time had domesticated horses, oxen, sheep, pigs and dogs, and hunted deer. They perhaps lived by cattle-breeding, but probably were not nomads, and carried on some agriculture. Stone industry, pottery-making and metallurgy were much advanced.

They made their cemetery near the dwelling. Stone cists were made of stone slabs, and covered with stone slabs or blocks. These are quite like the stone cist tombs in Siberia and East Russia, and seem to have had some relationship to the cairns and dolmens in South Manchuria and Corea.

This culture is basically a link in that of the north Eurasian metal age culture, but had many connections with the south, as is shown by the shapes of spear-heads, arrow-heads etc. and by the li-shaped pottery. We cannot find so many parallels with the East; as the greatest point of resemblance may be cited the firing of pottery.

The chronology of this second culture is determined by its bronzes, much influenced by the north Eurasian Culture or Scytho-Siberian art. It is perhaps to be dated from about 500 B. C. to about 200 B. C.»

I dare not express my opinion on the bronzes. They are rather inconclusive and one or two types may be more recent than the true Suiyuan (Ordos) bronzes.

An interesting feature is the frequent occurrence in these graves of skulls of dog and humeri of dog, deer, sheep and cattle.

The painted pottery of N. Shansi and N. Shensi.

From this area we know hardly more than that painted pottery occurs in two different types (For details see chapter 13).

Sherds of Yang Shao type. Plain bowls, mostly with very broad black or red marginal zones. Such finds were made at:

Shansi, Pao Te Hsien, Nien Yen Tsun.

Shansi, Hun Yuan Hsien, Li Yü Tsun.

Shansi, Chao Hsien, Tsao Chiao Tsun.

In addition to the broad painted borders there are a few sherds with linear designs in black or red. Bowls with broad painted borders occur also at Yang Shao Tsun but there only as a subordinate pattern. Here this design is quite dominating.

Cream-coloured pottery with red linear design, found in Shensi, Fu Ku Hsien, Wu Lan Kou. Ware like the Anyang cream-white pottery, but supposed to be prehistoric, slightly later than the Yang Shao stage.

The Honan painted Yang Shao.

The Yang Shao Tsun and the Ho Yin sites were studied by us.

The painted pottery found in the An Yang area (N. Honan), especially from the crucial stratigraphical section at Hou Kang, I cannot discuss as that material is not yet published. A painted sherd of Ho Yin type was found by Dr. Li Chi in one of the Yin graves at Anyang.

I consider the Ho Yin sites to be slightly more recent than Yang Shao Tsun.

Slightly older than Yang Shao Tsun, according to Liang Ssu Yung, is the site at Hsi Yin Tsun in S. Shansi, which was discovered by Dr. Li Chi and described by Liang. Possibly this site should be regarded as belonging to the Honan province.

No painted pottery more recent than Yang Shao was ever found in Honan. But at Yang Shao Tsun, and also at Pu Chao Chai, «black pottery» sherds are frequent.

Wei Ho—T'ao Ho water divide.

In our 11th chapter «Yang Shao sites in southernmost Kansu» we have described a number of sites located near the divide between the T'ao Ho flowing northwards through Central Kansu to the upper Yellow River and the Wei Ho flowing eastwards to the lower Yellow River.

The painted pottery found at these sites does not reveal any important new features. Their great importance lies in connecting the Honan Yang Shao with the Central Kansu Yang Shao to form a firmly cemented absolute synchronism. Fortunately it is not here a question of the gradual passing of one type into another. Apparently the Honan Yang Shao in its typical form spread all the way up the Wei Ho valley, and on the water-shed it received an equally typical, but numerically small, intermingling of elements from the near-by Ma Chia Yao site in the T'ao Ho valley.

The painted pottery province of Central Kansu.

This province of painted pottery is the central one in the whole of the Far East, both geographically and in the unparalleled development of prehistoric painted pottery. In our 22nd chapter I have given a review of the continuous development of Kansu prehistory through eight consecutive stages, and in our last chapter we shall learn that this development covers approximately two thousand years.

The Yü Men corridor.

In his monograph «Archaeological researches in Sinkiang» Stockholm 1939, page 25, Dr. Folke Bergman mentions that two other members of the Hedin expedition, Dr. B. Bohlin and Dr. G. Bexell, found painted pottery in the Yü Men corridor and SE of Suchow. These materials are not yet published, but I have been able to study the collection thanks to the kindness of Dr. Bergman, who will in due course describe them. I find it easy to sum up my impression of this material: in ware, painted design and the character of the surface these sherds and one nearly complete bowl fully agree with the dwelling-site pottery of Ma Chang age as I know it from several localities (see chapter 16 on the Ma Chang stage). This slightly fragmentary bowl very closely coincides with our K 5215, which we obtained by purchase in Ti Tao Hsien in central Kansu. Personally



Fig. 127. The Yar Khoto urn.

I am of the opinion that Mssrs Bohlin and Bexell have by their finds extended the area of the Kansu Ma Chang pottery to the Yü Men corridor.

Sinkiang.

When Dr. Sven Hedin's expedition to Central Asia started in 1927 we all hoped that there would emerge rich finds of painted pottery. The material actually found is small but provides us with very important information, indicating the existence in Sinkiang of a new province of painted pottery.

The finds from Sinkiang are very carefully described and discussed by the archaeologist of the expedition Dr. Folke Bergman in his monograph »Archaeological researches in Sinkiang», 1939.

The finds of painted pottery in Sinkiang are distributed as follows (Bergman l. c. page 14—18):

Miao Erh Ku, 85 km ESE of Hami.

Sengim Aghiz, 33 km E of Turfan.

Yar Khoto, near W of Turfan.

Toqsun, 45 km WSW of Turfan.

Charchan (Tjertjen), one of the oases at the foot of the Kun Lun mountains at the southern edge of the Takla-Makan desert.

Of these localities, Yar Khoto and Charchan are perhaps not quite proved as in both cases it is a question of purchased specimens. The Yar Khoto vessel is a small urn fig. 127, the Charchan specimen is a vase with high narrow neck with most graceful painting in black and white (fig. 128).

The sherds excavated by Bergman at Miao Erh Ku, Sengim Aghiz and Toqsun certainly belong to the same ceramic family as the two complete vessels, indicating a Sinkiang province of painted pottery.

In Kansu we have no real counterpart to this pottery. The only Kansu stage that offers anything similar is Ma Chang. In fact, I have some lugs of Ma Chang age which are temptingly like some of Bergman's specimens (fig. 129).

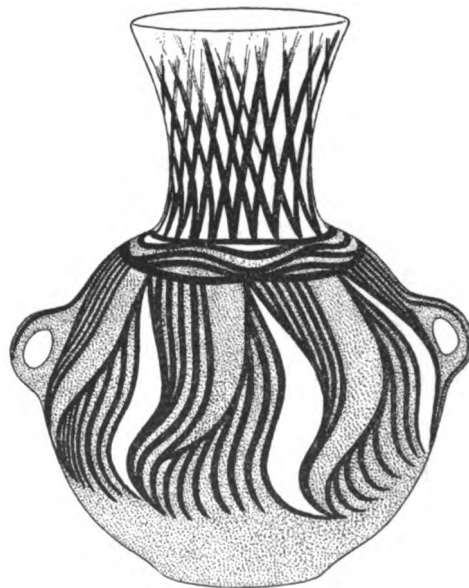


Fig. 128. The Charchan vase. Dotted = red.

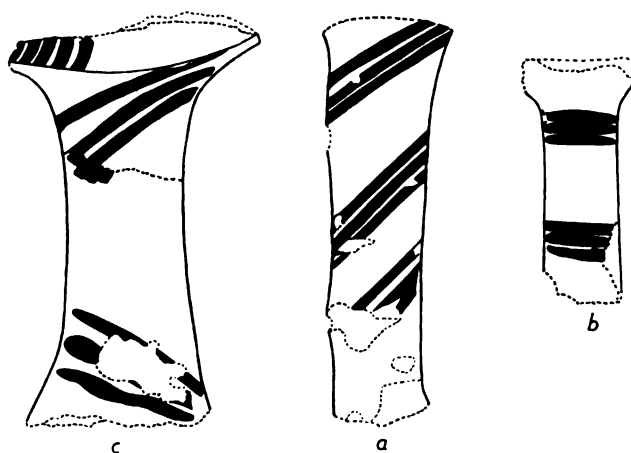


Fig. 129. (a) Handle from Toqsun in Sinkiang. (b, c) Handles from Kansu.

A still more expressive indication of close relationship between the Sinkiang province and the Ma Chang of Kansu is afforded by fig. 130, a Ma Chang urn which should be compared with the Yar Khoto urn. The affiliation of fig. 130 to the Sinkiang painted pottery is enhanced by the fact that free wavy lines like those of fig. 130 also occur in Sinkiang (comp. the Charchan vase fig. 128).

As far as the Yang Shao time is concerned, Sinkiang still remains an unknown quantity.

* * *

Before we proceed to formulate the conclusions to be drawn from this accumulation of localized painted pottery groups, it is desirable to review two papers written by Dr. L. Bachhofer and which try to explain the origin of the painted pottery of Northern China.



Fig. 130. Kansu urn of Ma Chang age. Sauphar collection.

They are:

1. Der Zug nach dem Osten. Einige Bemerkungen zur prähistorischen Keramik Chinas. Sinica, Sonderausgabe 1935. P. 101—128.
2. Zur Frühgeschichte Chinas. Die Welt als Geschichte. 1937. P. 256—279.

Dr. Bachhofer is a keen observer who would undoubtedly have produced far more useful papers had he had access to our material in toto. Some of

his errors are consequently due to our slowness in publishing the definite monographs.¹⁾

I now propose to illuminate the points where, owing to his unfamiliarity with the material, he has not been able to interpret the finds correctly.

1. *The Ch'i Chia stage of Kansu.* According to my relative chronology in the Prel. Report of 1925 this is our first stage of Kansu, older even than Early Yang Shao. This solution of this far from easy question is lightly cast aside by Mr. Bachhofer (2: 270) with the following words: »Meinem Empfinden nach hören die Gruppen Ch'i Chia und Hsin Tien zusammen.«

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In the large and rich Ch'i Chia P'ing site no Yang Shao sherds were ever found in the undisturbed parts of the deposit, but on the surface of the cultivated fields covering the Ch'i Chia deposit I collected a number of Yang Shao sherds, indicating that after the formation of the Ch'i Chia culture stratum some Yang Shao traffic has taken place over this terrace. So much for the topographical evidence.

The Ch'i Chia ceramics are almost exclusively unpainted. They are rich in vessels with vertical basket pattern (Pl. 39) and mat-impression and include a group of Kamm-keramik de luxe that are perhaps unequalled in their perfection (Pl. 36). The rich bone and stone furniture is entirely Neolithic in type. Never a trace of metal was found here.

To us who are familiar with the whole material it is evident that Ch'i Chia has to be connected with Yang Shao one way or another. As Yang Shao is with absolute certainty followed by Ma Chang and as a certain group of Ma Chang vessels are closely connected with a group of Hsin Tien vessels (see chapter 22), the only alternative is to place Ch'i Chia before Yang Shao, which agrees well with the topographical evidence.

There is a certain general likeness in outline between the high-collared Ch'i Chia amphora and a group of Hsin Tien urns, but this is merely one of those persistent survivals of shapes which we have discussed in chapter 22.

I would willingly accept any *possible* alternative as to the age of Ch'i Chia, seeing that the domestic mammals of this stage are rather advanced (see chapter 5). But placing it, as Bachhofer suggests, in the Bronze Age (compare chapter 17, where the dwelling-site pottery of Hsin Tien is described) is entirely out of question. The Lo Han T'ang site, which we regard as Early Yang Shao, has similarities to Ch'i Chia which Middle and Late Yang Shao have not. When therefore all facts are taken into account I think it well founded to place Ch'i Chia prior to Yang Shao.

¹⁾ In 1936 I came to Nanking with my own topographical report »The prehistoric Sites of Northern China«, Mrs. M. Althin's very elaborate monograph on the Ch'i Chia P'ing site and Professor O. Janse's description of the burial urns of the Hsin Tien stage. The type setting of my paper was nearly completed when the war broke out and my material was left to a very uncertain fate.

During the last few years the material from the Honan sites and the Chu Chia Chai site in Kansu have been gone through and will soon be published.

The present paper will, I hope, serve well as a general survey of the whole complex of sites.

This conclusion is in its turn very fundamental for discussing the migration theory of Bachhofer. There are among the Ch'i Chia amphoras two specimens, Prel. Report Pl. V, 1 b and our Pl. 37, 2, which are painted with brilliant violet hanging triangles. The problem of pottery painting in the Far East does not begin ✓ with Yang Shao but with the hanging triangles of Ch'i Chia P'ing.

2. *Mortuary urns versus dwelling-site pottery.* Both in my Prel. Report and still more in chapter seventeen of «Children of the Yellow Earth» I have emphasized the deep contrast between the village ceramics and the mortuary urns of one and the same period. Most striking and fundamentally important is the contrast between Ma Chia Yao and Pan Shan, the village and the burial ground of one and the same population. We know very little about the topography of the Ma Chang period, but the abundant finds at our disposal show practically the same two facies, dwelling-site pottery of one type and funeral pottery of another. Much the same conditions prevailed in Hsin Tien and Sha Ching times, of Ssu Wa and Ch'ia Yao we know only the graves, of Ch'i Chia only the village site pottery. I am convinced that new light will be thrown, specially on the beginning of pottery painting, when once the village necropolis of Ch'i Chia P'ing has been found.

Kansu coarse ceramics. Ting and Li. Bachhofer is labouring under a complete misunderstanding when he believes that very little coarse pottery exists in Kansu and that basket- and mat-impressions are missing (1: 103—104). The few vessels of this type described by Palmgren are those which belong to the Pan Shan mortuary pottery. Coarse pottery with mat- and basket-impressions abound in the dwelling sites of Kansu (see our plates 36, 42 and 124). A large body of material will be described in our monographs. The abundance of painted pottery caused us to pay too little attention to this inferior ware.

↓ Tripods are rare in the pre-metallic sites of Kansu. The oldest complete Ting tripod (textfigure 43) was found in the Shih Li P'u site (Ma Chang). The oldest complete Li were found in the Hui Tsui dwelling site (Pl. 171,1 and 174,2). This site is of Hsin Tien age, i. e. Early Bronze age.

Fragments which probably belong to tripods of these types were however found in much earlier deposits. In the Chu Chia Chai site (Late Yang Shao) there is a Ting leg and a hollow leg which could hardly have belonged to anything but a Li.

A Li-tripod leg was found in the Ch'i Chia P'ing site.

• *Sudden beginnings.* Bachhofer emphasises the fact that the painted pottery in Honan and also in Kansu appears all of a sudden as a fully evolved art, and he believes that there was an indigenous grey coarse pottery in use before the arrival of the art of painting. This theory he bases upon Pu Chao Chai, which site lacks the painted pottery but is otherwise very like the nearby Yang Shao Tsun.

Granted that Ch'i Chia P'ing is the oldest site of all, the painted pottery did not appear overnight. The two Ch'i Chia P'ing amphoras with violet hanging triangles

are a reminder to proceed with caution in discussing the origin of pottery painting in the Far East.

Bachhofer's migration theory. This author operates along the line which I established in 1923 when, impressed by the similarity of the Yang Shao painted sherds with those from Anau, Tripolje etc., I advocated in E. Ch. C. p. 37—41 the possibility of the western origin of the art of pottery painting.

Bachhofer's version of this idea is very elaborate. With interesting comparisons he tries to locate the origin of the Far Eastern painted pottery in SE Europe, an area which he outlines in these words:

»Dieser andere Kulturkreis befindet sich im Gebiet der Schwarzen Erde; er erstreckt sich von Kiew ab über die Ukraine, nach Süden bis nach Bessarabien und die Moldau, nach Westen über die Bukowina und Galizien nach Siebenbürgen« (1: 112).

He assumes a migration, a veritable Völkerwanderung of the makers of painted pottery in the lands bordering on the north-western part of the Black Sea. He sees them travelling through Asia over steppe and desert until they reach the fertile valleys of Northern China, Kansu, Shensi, Shansi and Honan, where they add to the already existing abilities of the indigenous population what was up till then the unknown art of making painted pottery.

From the scant facts at his disposal Bachhofer is able to trace the route of this migration (2: 269): »Sein Weg lässt sich tief nach Zentralasien zurückverfolgen, denn die Expedition Sven Hedins hat bei Hami und im viel weiter westlich gelegenen Urumchi bemalte Keramik der chinesischen Gruppe in neolithischem Kontext entdeckt«. The mere fact that some painted sherds were found is sufficient evidence for him.

He follows them further, but their routes differ from one paper to another. In his first article, in 1935, he suggests two waves of migration. First went the group which finally settled in Honan. »Der Weg scheint nicht über Kansu geführt zu haben« (L. c. p. 125).

The second wave of migration went to Kansu: »Die Ankunft dieser zweiten europäischen Invasion in Kansu wird wohl etwas, aber nicht sehr viel später erfolgt sein, als die der Eindringlinge in Honan.«

In the 1937 article the routes are different: »Der Weg der Vasenmaler, die Kansu passierten und weiterzogen, lässt sich gut verfolgen: sie überstiegen die Wasserscheide zwischen dem T'ao-ho und dem Wei-ho und rückten über dieses Tal in das des Huang-ho ein«. (L. c. p. 271).

In the first article the newcomers are straightforward »die eingedrungene Herrschicht« (P. 127). In the second paper there is a contradictory statement: »Es war also nicht richtig, wenn ich früher von der bemalten Keramik als von der Keramik einer eingedrungenen Herrschicht gesprochen hatte.« (L. c. p. 272).

Nevertheless the »Vasenmaler« were the superior race. Their qualities were: »die grössere Regsamkeit, die ausgedehntere Erfahrung in der Aufzucht von Vieh,

im Bau von Wohnstätten und in der Anlage von Befestigungen für die Dörfer, das feinere künstlerische Empfinden und die höheren technischen Kenntnisse» (P. 271).

How does now this fanciful fabric agree with the actual facts?

First one small observation. We now know beyond any doubt that the two Yang Shao provinces Yang Shao Tsun on the one hand and Ma Chia Yao on the other developed to a large extent independently of one another and that the Yang Shao type migrated up-river the whole length of the Wei Ho, finally to mix in the sites on the Wei-T'ao divide with elements from Ma Chia Yao (our chapter 11).

The migration of the Vasenmaler from T'ao Ho over this divide is thereby exposed to what is its real nature: fiction. But this is merely a local detail.

I willingly accept much of Bachhofer's comparisons between the painted pottery of the Black Sea countries and that of Kansu. Our plates 55,2 b and 56,1 a afford from the Ma Chia Yao dwelling-site pottery two instances of double spirals which run clockwise, not counter-clockwise as do the spirals of the Pan Shan mortuary pottery, which is strictly synchronous with Ma Chia Yao.

There are certainly striking parallels between the Black Sea and the Kansu pottery, as I first explained in E. Ch. C. of 1923. I only believe that Bachhofer went too far in denying any Far Eastern connections with Anau and will return to that question below.

When travelling through Russia several times between 1925 and 1938 I took the occasion to study the Tripolje urns in the Hermitage in Leningrad and in the Historical Museum in Moscow. I was struck by two features, the similarity in the shape of the urns, in painted design and in the pigments. But at the same time I could not avoid noting how widely inferior these vessels were, in more irregular shape, in poorer build, in coarser ware and in less careful painting, when compared with the Kansu masterpieces, which stand alone in the world in artistic conception as well as in exactness of execution.

Bachhofer is conscious of the difficulties attending his theory. Judging merely from reproductions of part of the material, he willingly admits the superiority of the painted pottery in China:

»Man muss sich immer vor Augen halten, dass in Kansu, zur Zeit als die Gefässe der Pan Shan (Ban Schan) Gruppe entstanden, eine sehr rege künstlerische Begabung am Werke war, die jene Motive, welche mit Südosteuropa zusammenhängen und die auf alle Fälle vom Westen hergekommen sein müssen, nicht einfach kopierte sondern sie selbständig weiterbildete. Man arbeitete mit Formen, die im Westen als Verfallsformen angesprochen werden müssen, aber hier wusste man davon nichts, und war sogar imstande ihnen neues Leben einzuhauchen: ich erinnere nur an die disziplinierten und kraftvollen Spiralkombinationen und das »Vasenmuster«, die beide aus ziemlich flauen und schlaffen Grundformen hervorgegangen zu sein scheinen. Der Westen hat dem nicht ähnliches zur Seite zu stellen«. (1: 120).

»Die Pan Shan (Ban Schan) Gruppe weist einen überraschenden Reich-

tum des Dekors auf: Palmgren hat nicht weniger als 19 »Familien« aufstellen können, deren jede ihr charakteristisches Motiv hat. Die Gefässformen wurden in 40 Typen eingeteilt.

Das darf sicher als Zeichen eines sehr regen künstlerischen Lebens interpretiert werden.» (1: 107).

»Die Pan Shan Gruppe verfügt über eine erstaunliche Fülle an Mustern zur Dekoration ihrer Gefässe.» (1: 116).

In his second paper Bachhofer sums up (p. 170) the characteristics of the Kansu painted pottery as follows (the italics are ours): *»Die Keramik zeigt eine Stärke und Schönheit in Form und Dekor, die die westlichen Beispiele schwach und verkümmert daneben erscheinen lassen«.*

In order to make both ends meet, Bachhofer is forced to postulate that the migration from the Black Sea began only when the painted pottery style was already decaying. He believes that *»Kansu die Spiralverschlingung und deren Zerfallsprodukte als geschlossenen Formenschatz von aussen her erhalten habe.«* (1: 111).

In order to explain how such a flourishing art with many types of its own, never seen in the West, could arise in Kansu out of these »Zerfallsprodukte«, Bachhofer builds up an ingenious but somewhat overdone theory.

»Als reine Vermutung sei die Ansicht ausgesprochen, dass irgendwo im Osten Europas die schon etwas müde und degenerierte Kultur der Schwarzen Erde von einem frischen, kräftigen Volk aufgenommen und dessen Geschmack entsprechend umgewandelt wurde. Vielleicht gibt die Gefässform einen Hinweis darauf ab, woher dieses Volk gekommen sein könnte: die wundervoll straff gebaute Amphora, die Hauptform der Pan Shan (Ban Schan) Keramik, stimmt nämlich bis ins Kleinste mit der Leitform der mitteldeutschen Schnurkeramik überein.» (1: 121—122).

This migrant race derived from Central Germany becomes in China *»Die eingedrungene Herrschicht«* (1: 127).

In the second paper the term »Herrschicht« is withdrawn: *»Es war also nicht richtig, wenn ich früher von der bemalten Keramik als von der Keramik einer eingedrungenen Herrschicht gesprochen hatte; zur Aufrichtung einer Herrschaft fehlte jeder innere Antrieb und äussere Anlass. Man hat hier vielmehr das ziemlich seltene Schauspiel vor sich, dass zwei Bauernkulturen, die unter den denkbar verschiedensten Umständen entstanden waren, zusammentreffen, nebeneinander, dann miteinander fortbestehen, voneinander lernen, sich mischen, wobei schliesslich, wie nicht anders zu erwarten war, das bodenständige Element die Oberhand gewinnt«* (2: 272). It was a peaceful penetration; it is however clearly stated that the newcomers were the vastly superior race.

It can safely be asked: is it after all a real service to science to advance such far-fetched constructions?

In order to strengthen his theory Bachhofer looks round for anthropological evidence of this race of newcomers from the West. He then quotes Black, who in the appendix to my Prel. Report 1925 mentions three Kansu skeletons which

he marks as the «Type X» in which he thinks he can see some intermixture of western characters.

This anthropological note was kindly written at my request by Black only after a cursory survey of the Kansu skeletal material. Bachhofer seems to have overlooked the fact that in 1928 Black in his monograph «Kansu and Honan Aeneolithic skulls». *Pal. Sinica. Ser. D. vol. 6. Fasc. 1*, page 5 withdraws the type X, which, he had since found, formed (of [part]) what he names on page 81 «proto-Chinese».

In order to trace the steps of the Herrenvolk marching eastwards Bachhofer quotes the note that the Hedin expedition found in Sinkiang painted pottery, »bemalte Keramik der chinesischen Gruppe in neolithischem Kontext.»

At this point we shall return to our review of the vast area in the Far East where a considerable number of provinces of painted pottery are now known, thanks to the excavations of many scientists.

The westernmost place at which painted pottery has so far been met with in the Far East is Charchan in Sinkiang, and the easternmost is the Liao Tung peninsula in southernmost Manchukuo, a distance from West to East of 36 meridian degrees, which nearly equals the W—E extent of the aggregate area of painted pottery of the Near East taken at its widest extension from Eastern Europe to Western India and West Turkistan. However, this result has been obtained in the short period of sixteen years from 1921, when the first finds were made, to 1937, when the present war broke out. Compared with eastern Europe and the Near East, where painted pottery has been studied for more than half a century, in the Far East only the surface has been scratched so far. It is in no way an exaggeration to assume that the painted pottery provinces of the Far East form a cultural complex just as varied and extensive as that of the Near East. One day these two areas will be united through numerous sites being found and carefully surveyed in Central Asia. Then we shall know the nature of the actual cultural exchanges between West and East.

At present the problem Tripolje—Yang Shao has revealed no connection across the desert and oasis world. As was proved by the finds of the Hedin expedition, the Kansu type of Ma Chang ends at the Yümen corridor. Beyond that point we meet, in five widely spread places, a well-defined Sinkiang province of painted pottery. These ceramics — as far as we know them at present — have nothing to do with Yang Shao. They retain their own type, though with a marked likeness to Ma Chang, indicating their probable age. As far as our knowledge goes, they tell us nothing about the problem discussed by Bachhofer. Their age is one or more periods too late.

While waiting for new facts we may contribute to the discussion with some additional remarks.

Bachhofer misunderstands the situation when he believes that we have undisputed sites with Ting, Li etc. older than Yang Shao but without painted pottery.

Pu Chao Chai is no evidence as, in view of the sickle-shaped stone knives, it may be more recent than Yang Shao.

This entire complex: the coarse pottery, the Ting and Li, the tall brick-red vessels with pointed bottom and the black pottery, as well as the fine painted ceramics, all appear at one time, just as ready and created »overnight» as does, in a later time, the marvellous palace style of the Anyang bronzes (mirabile dictu called by Bachhofer »barbarisch» 2: 278).

There is nothing to indicate that any other race participated in the making of the Honan and Kansu pottery of the Yang Shao period. There are several kinds of ceramics, coarse and fine, grey, black and brick-red, painted and unpainted. But they are not sharply demarcated one group from the other. There are grey and black tripods, there is a black bowl exactly like those with painting, and at Yang Shao Tsun there are coarse, thick-walled, brick-red vessels with mat-impression and painting combined.

It is not only the painted pottery that is of excellent, partly unique quality. An eggshell urn like Pl. 35,1 and the black pottery vessel Pl. 28,3 hardly meet their equal in any other pre-metallic culture. Everything goes to show that the Chinese were master potters from their very first appearance in the Yang Shao culture.

Bachhofer has emphasised that in the Yang Shao painted pottery there are numerous patterns which are unknown in the West.

Furthermore there is a feature which seems to indicate that China was the giver and the West the recipient. This is the »death pattern» which in its full development rules supreme over all the mortuary pottery of Kansu Middle Yang Shao (Pan Shan). Already in Late Yang Shao (Chu Chia Chai) this pattern becomes less consistent, in Ma Chang it is still often seen but its decay is progressing rapidly.

When Bogaevskij here in Stockholm studied the death pattern, he showed me that it recurs in Tripolje, and traces of it are also observable in Anau. In those sites, however it is not the flourishing design of Pan Shan, but has deteriorated, much as we find it in Ma Chang.

* * *

It would take us much too far to enter into a detailed discussion of the relationship of Tripolje and Anau with the Kansu cultures. But one fundamental feature should not be overlooked here.

When I wrote my first paper on these problems I was only on the outskirts of the field; I knew only the Yang Shao of Honan.

Today, now that we know the rich successions of painted-pottery stages in Kansu, it is easy to perceive how the closest likeness to the West is not to be found in Yang Shao but in Ma Chang.

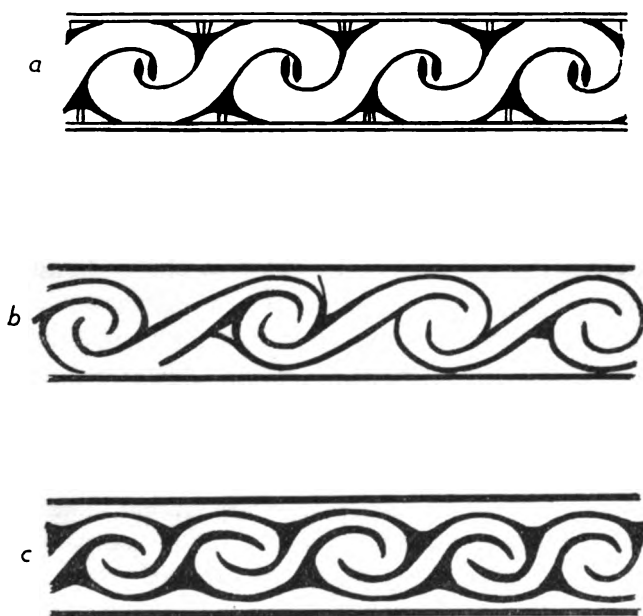


Fig. 131. (a) Spiral design of a Tripolje vessel (Passek, l. c. Pl. XX,8). (b) Spiral design of our Pl. 109,4, Ma Chang age. (c) Spiral design of our Pl. 109,5 Ma Chang age.

Fig. 131 gives (a) the spiral design of a Tripolje vessel (T. Passek: *La céramique Tripolienne*. 1935. Pl. XX, 8).

b) the design of the Kansu Ma Chang dwelling-site vessel Pl. 109,4.

c) another Ma Chang specimen Pl. 109,5.

The striking resemblance between the Tripolje and the Ma Chang designs needs no comment.

Among the Ma Chang vessels there are also spirals running anti-clockwise, as do the Pan Shan spirals. Fig. 132 shows this anti-clockwise spiral design on the Ma Chang urn Pl. 109,2.

We note a similar anti-clockwise pattern on the tripod Pl. 171,1 which is of Hsin Tien age (fig. 133).

This brings us into contact with some striking parallels between Tripolje and Hsin Tien. Fig. 134 is a typical Hsin Tien sherd painted on both sides and with a spiral pattern on the inside which reminds us strongly of a group of Tripolje patterns.

Fig. 135 (a, b) are Tripolje designs. (c—e) are designs from typical Hsin Tien sherds.

The interest has shifted from Yang Shao to Ma Chang, which occupies a central position in this discussion. Ma Chang offers parallels to the Sinkiang painted pottery and to Tripolje. It also offers parallels to Yang Shao, which is its ancestor, and to Hsin Tien, which is its offspring. In this way it is easy to understand how Tripolje can offer parallels to the older Yang Shao and to the younger Hsin Tien.

With Ma Chang as the connecting link between East and West it is easy to bring the datings into accord. For local reasons, explained in the next chapter, we date Ma Chang 1700—1300 B. C. as compared with Bachhofers date 1500 B. C. for Tripolje.

There is a further fact to be observed. The Late Yang Shao and Ma Chang of Kansu offer many parallels to Anau in painted design, fig. 136.

We are now ready to summarize the situation. As far as we can perceive, the



Fig. 132. Spiral design of Pl. 109,2.

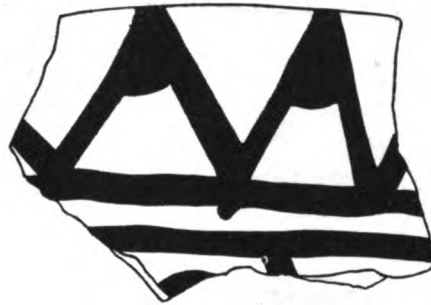


Fig. 134. K 2429: 369 from Kansu, Kou Lan Hsien, Ta Shih Chuan. Sherd of Hsin Tien type, painted on both sides: upper = outside, lower = inside.



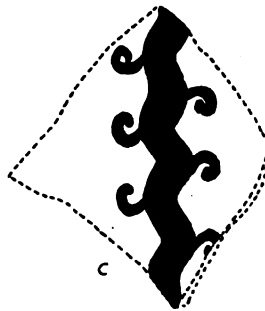
Fig. 133. Spiral design of Pl. 171,1. Hsin Tien age.



a



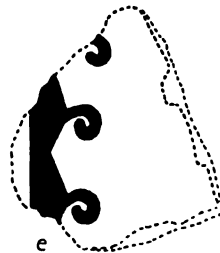
b



c



d



e

Fig. 135. (a—b) Tripolje designs (Passek l. c. Pl. XV.4) (c—e) Hsin Tien sherds from Kansu Nien Po Hsien, Ma Chang Yen.

Anau

Kansu
Late Yang Shao and Ma Chang

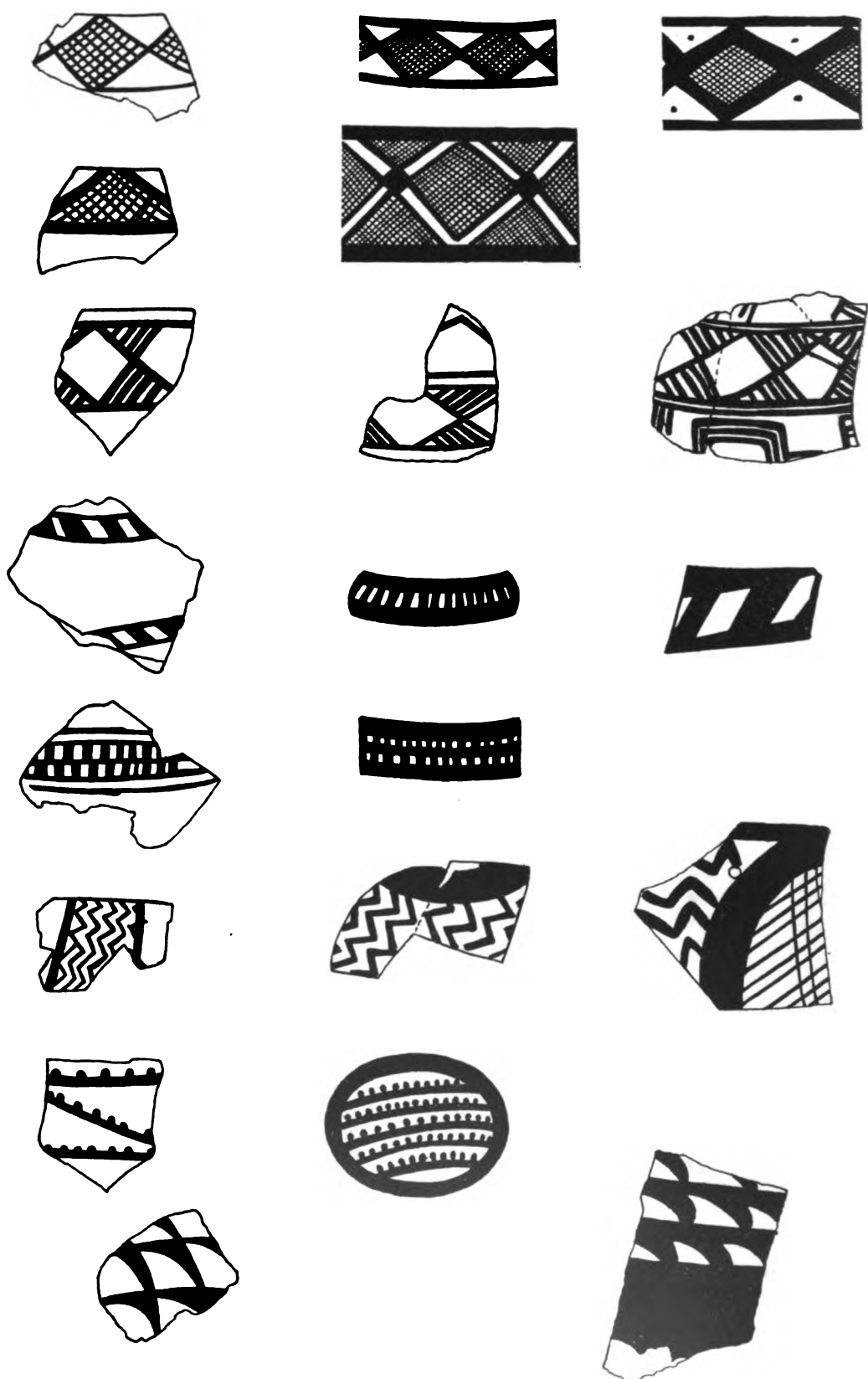


Fig. 136. Anau designs compared with those of the Late Yang Shao and Ma Chang stages of Kansu.

painted pottery — autochthonous or derived from some unknown source — began on a small scale already in Ch'i Chia time and rose in Yang Shao time to unequalled splendour.

In Ma Chang time, when the decorative style was already on the decline, there developed strong parallels, on the one hand to Anau, and on the other to Tripolje.

With our present very limited knowledge it is premature to discuss where these cultural impulses first arose and how they migrated across Central Asia.

* * *

Only one more remark should be made with reference to Hubert Schmidt's and Bachhofer's way of discussing cultural relations between East and West.

It is not only unfounded but rather disgraceful when we Europeans, working under a superiority bias that lacks proportion and perspective speak of »Herren-völker» who brought a superior culture to China.

Who are the Chinese? In four parts of the Old World, in Egypt, in Irak-Iran, in NW India and in China there arose at the dawn of the metal ages high cultures, the remains of which seem to us grand and marvellous. What has become of these ancient civilizations? In Egypt, in Mesopotamia, on the plateaus of Iran, in Punjab and Sind: desert, dust and oblivion. Only in China is there an unbroken succession of the same race, of the same culture starting with Yang Shao via Anyang up through the dynasties to the present day, the same race, virile, industrious and peace-loving. Several times the Chinese were subjugated by warrior-barbarians. But they always emerged again, through armed defence or peaceful penetration, in freedom and strength.

Should we not approach their initial sites with caution and reverence?

31.

A TENTATIVE CHRONOLOGY.

Upon now proceeding to try and establish a tentative chronology for the pre-historic stages of Northern China we shall leave out of account for the present the very far-fetched comparisons based upon parallels in the near East, and limit our scope to the few starting-points offered by the earliest data of Chinese history.

The principal date from which to depart is that of the Yin culture. Professor Karlgren has informed me that, when all available facts are taken into consideration, we may fairly assume that the Yin dynasty ruled from, in round figures, 1500 to 1000 B. C. On these dates he has kindly given me the following note: »In the Bamboo Annals (the authentic ones, as reconstructed by Wang Kuo-wei)

it is clearly stated that it was king Pan Keng who transferred the capital to Yin (the present An-yang). Acc. to the orthodox chronology, Pan Keng ruled from 1401 B. C., acc. to the chronology of the Bamboo Annals from 1315. The capital remained there to the end of the dynasty, 1123 B. C. acc. to the orthodox chron., 1051 acc. to the Bamboo Annals. There is, however, no certainty that even the latter does not represent somewhat high figures. The Yin culture, moreover, certainly did not begin with the capital An-yang, for in the oracle bones the names of the pre-An-yang kings of the dynasty occur frequently, and there is no likelihood of a sudden revolution in civilization with Pan Keng. The An-yang culture must rather be considered as representative of the dynasty as a whole. Its dates are probably somewhat too high in the ancient sources. If we reckon cautiously and in round figures, counting in half-millennia, we obtain this scheme:

	Orthodox chr.	Bamboo chron.	Rough estimate
Beginning of Yin (Shang)	1766	1558	1500
Pan Keng (founder of An-yang) from	1401	1315	—
End of dynasty	1123	1051	1000*

The figure 1500 B. C. may then for the time being be accepted as the dividing line between what is, with our present knowledge, historic and prehistoric time in Honan.

Let us then discuss the relationship of the Anyang court culture to the village cultures of Yang Shao (painted pottery) and Lungshan black pottery.

In the vicinity of Anyang, at Hou Kang, the archaeologists of Academia Sinica have discovered a section where they found, deepest down, painted pottery, in the middle layer black pottery and in the uppermost stratum a white ware which they compare with the white pottery of Yin time. This seems to indicate that here was found a sequence of fundamental importance, namely:

Yin
 Lung Shan
 Yang Shao.

However, so long as the material from this crucial section is not published in full we have to proceed with caution, especially as there is a white ware at Hsi Yin in SW Shansi and also a white ware at Wu Lan Kou in northern Shensi. So far as I am aware, it has never been stated that the Hou Kang white ware carries anything of the moulded design characteristic of the Yin white pottery.

Furthermore the exact relationship between Yang Shao and Lung Shan is not quite clear. Owing to the Hou Kang section it has been held probable that Yang Shao is the older and Lung Shan the younger of the two. But the occurrence of black pottery with the painted ware at Yang Shao Tsun, at Hsi Yin, at Sha Kuo T'un and some other sites, even in Kansu, raises the question whether it is not possible that the two are mainly synchronous in that painted and black

ceramics occur together in the interior but the black pottery alone rules in the costal provinces (Shantung and Chekiang?) and has there been given the name Lung Shan.

For these reasons we may here provisionally discuss Yang Shao—Lung Shan as a closely related group.

In one of the Anyang graves Dr. Li Chi found, together with indisputable Yin objects, a Yang Shao sherd. (Preliminary reports of excavations at Anyang 1—2). This specimen coincides so fully with the painted sherds from Chin Wang Chai in Ho Yin Hsien that I should feel inclined to believe that it came from that area. Dr. Li considers two alternative explanations, first that Yang Shao and Yin were contemporaneous and second that at the time of the burial this piece was already treasured as a «curio» on account of its rareness and strange appearance.

Personally I hold the second view to be undoubtedly the right one, and I also place the Lung Shan black pottery under the same device: both the marvellous Ho Yin painted pottery and the Lung Shan black pottery are, each in its own line, masterly manifestations of the potter's art. Had these ceramic secrets still remained alive during Yin time, the treasure-loving rulers of Yin would certainly have adorned their palaces, their temples and their graves not with an occasional sherd but with complete specimens de luxe of these ceramic arts.

We take it then for granted that the painted as well as the black pottery were arts of the past when the Yin people settled in Anyang.

Everything goes to show that a fundamental change had taken place in Honan between the end of Yang Shao and the beginning of Yin. The village art of Yang Shao turned its face to the west, to Kansu as the centre of painted pottery art, where painting was practised already in Ch'i Chia time. The bronze art of the Yin turns its face eastwards to meet Pacific connections of a still but little explored nature.

Furthermore, there is another event recorded in the Chinese annals that occurred prior to the Yin: The Hsia dynasty. Much has been written and little is known about this, the earliest recorded Chinese dynasty. Some have assumed that Yang Shao and Hsia are one and the same thing, others doubt that there ever was such a dynasty, still others that Hsia was not a dynasty but merely a local tribe. When considering this matter it should be kept in mind that all our wonderfully rich and tangible knowledge of the Yin is derived from one single site. There is nothing improbable in the hope that one day a new fortunate find will reveal the Hsia capital, not a ready and far advanced creation such as Anyang but the beginning of the grand Bronze Art to come and a stage bridging over the present gap between prehistory and the rich and ready evolved Yin culture. If to cover the Hsia dynasty, the subsequent pure Lung Shan culture and the fundamental reshaping of nearly all the features of the art, we reckon two hundred years between the end of Yang Shao and the beginning of Yin, this may be considered a moderate estimate. We then arrive at 1700 B. C. as the end of Honan Yang Shao.

In order to follow up our chronological essay we have now to proceed to Kansu, where the painted pottery sequence is complete from Ch'i Chia to Sha Ching. Let us consider for a moment the Sha Ching finds. Here we are in a favourable position to get an approximate dating for the Sha Ching stage. The bronzes contained in these finds belong to the group of the Ordos bronzes, which means, from what we know about this northern group of animal style bronzes, that Sha Ching cannot be a very old stage, as I was tempted to assume when in 1925 I wrote my preliminary report. The researches of Arne on the Luan P'ing and Hsuan Hua finds (this Bulletin N:o 5, 1933) and Karlgren's paper »Ordos and Huai» (this Bull. N:o 9, 1937) point to 300 B. C. as the latest possible date for the Sha Ching sites.

But at Sha Ching we have the means for proceeding a step further. As will have been seen from our chapter 21, with the map of the Sha Ching S. sites, the walled-in place Liu Hu T'un and the nearby grave field, both of the Sha Ching age, are surrounded by hut ruins from the Han dynasty. These ruins and the entire ground between the dunes is covered with slag bricks which were apparently the building material for the huts. In the huts and also elsewhere we found Wu Shu coins and abundant pieces of old iron. Never was a coin or a piece of iron found in situ in the Sha Ching graves or in the deposit inside the Liu Hu T'un wall. Consequently it seems as if the Sha Ching stage with its many bronze objects is just as purely Bronze Age as are the Han remains Iron Age. Professor Karlgren has kindly pointed out to me that according to the Chou annals iron, weighed in hundreds of catties, was in use as early as 513 B. C. and for this reason he advises me not to place the end of the Sha Ching time later than 500 B. C.

Here then we have the two dates, 1700 B. C. for the end of Yang Shao and 500 B. C. for the end of Sha Ching, round which we have to arrange our Kansu finds.

First, then, taking the Kansu Yang Shao, a rich aggregate of very varied sites, among which we have been able to distinguish Early (Lo Han T'ang W), Middle (Ma Chia Yao—Pan Shan) and Late (Chu Chia Chai) Yang Shao. For such a complex of succession of sites I think it reasonable to assume an aggregate age of five hundred years. That takes us back to 2200 B. C. In previous chapters I have given the reasons why the entirely pre-metallic Ch'i Chia stage cannot be placed otherwise than before Yang Shao. Ch'i Chia is a large and rich site, and traces of this stage have been found in widely different parts of Kansu. We assume for this stage a lifetime of three hundred years, taking us back to 2500 B. C., which is our earliest date.

Yang Shao passes over into Ma Chang, a rich, widely spread and very varied stage for which I have assumed four hundred years, taking us down to 1300 B. C.

Ma Chang, the last pre-metallic stage, is followed by Hsin Tien, the earlier part of the Bronze Age of Kansu. It is a stage with a very rich dwelling site (Hui Tsui) and two cemeteries, rather different from one another but located close together (Hsin Tien A and Ssu Shih Ting). This stage I have placed between 1300—1000 B. C.

Ssu Wa and Ch'ia Yao are two stages only slightly connected by the more or less saddle-shaped mouths of their urns. Ssu Wa is more Chinese in type; Ch'ia Yao has affiliations to the Ordos bronzes. Both of these stages fall in the later Bronze Age and are here placed at 1000—700 B. C.

There is nothing so far known to assign to the rich and interesting Sha Ching age a long lifetime. I have suggested 700—500 B. C.

Late Stone Age	Ch'i Chia	2500—2200
	Yang Shao	2200—1700
	Ma Chang	1700—1300
Bronze Age	Hsin Tien	1300—1000
	Ssu Wa — Ch'ia Yao	1000— 700
	Sha Ching	700— 500

I am fully aware that there is still much guess-work in this chronological table, but it is a considerable stride forward when compared with my table of 1925. The order of stages has remained unaltered, but the better understanding of Sha Ching has brought us to realize that from Hsin Tien onwards these ceramic stages are prehistoric only in so far that they show very slight connection with things Chinese. On their back-block they form a facies parallel to the pre-Han dynasties of China proper. Chinese history tells us that repeatedly during the early dynasties new and powerful rulers with a strong following came down from the northwest to the then imperial centres, S. Shensi and Honan. Northwest should mean, then, first of all Kansu. Under these circumstances it is noteworthy that so little of the ceramics forms and designs were carried along to imperial China. The Li tripod with bulbous legs of Hsin Tien and Ssu Wa age (Pl. 173, 174) and the twin meander of Ma Chang age (Pl. 114) are the only two really striking likenesses to Yin and Chou bronzes. To a remarkable extent these ceramic cultures of Kansu for twelve hundred years (1700—500 B. C.) held their ground vis-à-vis dynastic China. How far this development of local art was supported by local independent principalities I am not able to judge.

This isolation of Kansu from Honan does not apply to the Yang Shao time. Among the many riddles beclouding those ancient days none is more fascinating than the wide dispersion of the Yang Shao culture. From Ho Yin in Central Honan to Lo Han T'ang in Tibetan territory I have followed the seemingly countless multitude of Yang Shao sites. In my earlier writings I specially emphasised the large number of forms in clay and stone which passed over from the Honan Yang Shao to historical times. But as we have now found traces of Li tripods both in Ch'i Chia and in Yang Shao of Kansu, and since we have been able to trace (chapter 23) how the Chinese of today and the Lo Han T'ang dwellers dressed their rectangular knives with cloth or skin in identically the same way, Kansu also stands out more conspicuously as a Yang Shao forerunner of historical China.

Nevertheless, the most important contribution from Kansu to the subsequent historical Chinese culture was yielded by the graves of the Pan Shan hills. Here we meet the first veritable hoard of that substance, jade, which side by side with the Li tripod forms the emblems which from Yang Shao on up through the ages to the present day have stamped Chinese civilization with its characteristic mark. Here we find imperfectly cut but otherwise splendid specimens of Yuan and Huan rings of jade and marble (Frontispiece 1 and Pl. 71, 72), exceedingly graceful, slender tablets of jade (Frontispiece 1, 3—4), the earliest known, very simple Tsung (Pl. 71,4), pieces of only partially cut jade (Pl. 71,5, 8), a marble ring in three sections (a well-recognized historical type, Pl. 72,5), a marble crescent-shaped object (Pl. 72,1, another well-known historical type.) Furthermore, jade chisels occur in several dwelling sites in Honan and Kansu (Pl. 73).

Thanks to the Kansu finds, the prehistoric lapidary of China is enriched by other semi-precious stones, well known and widely used in dynastic times, such as turquoise, chalcedony (agate), steatite, and carnelian (Sha Ching). A novel feature, identified by Professor G. Aminoff, is the amazonite occurring in the Pan Shan and Chu Chia Chai graves of Yang Shao age.

It is a complex and perplexing synthesis of disparate prehistoric elements that we meet in the palace art of Anyang: Ting and Li tripods, principally from Honan, Hsien, Kia, Tou, Kuei also of Honan make, jade Tsung from Pan Shan, Huan-Yuan rings from Pan Shan and Sha Kuo T'un, turquoise from Kansu etc. And upon all this prehistoric material was impressed a new mark, the «Pacific» t'ao-t'ie design of the Yin style.

* * *

The deeper we penetrate into the study of those remote times, the more we are impressed by the inflexible riddles barring our way. Foremost of these is the «Neolithic hiatus», which I discussed in full in my Prel. Rep. 1925, p. 31—40.

The facts are, in brief, as follows:

During the loess period (Palaeolithic time) the climate of Northern China was so arid that the region, apart from residual lake areas, may have been largely depopulated.

After the loess period followed the P'an Chiao stage of vertical river erosion, during which the loess cover was largely dissected and locally small canyons cut into the solid rock. This period, which may correspond approximately to Mesolithic and Early Neolithic, was a time of abundant rainfall, which in that part of the world must mean a genial climate. In other words, the region certainly abounded in game and must have formed a pleasant habitat for primitive Man. However, as far as I know, the situation in 1943 is the same as it was in 1925: no indisputable Mesolithic or early Neolithic site has so far been found in northern China. This situation may be changed any day, for instance, by cave-finds in the P'an Chiao valleys.

Nevertheless, such stray finds would not entirely relieve the situation.

Then suddenly, at the very end of the Neolithic, at a time only four thousand years distant from our own, the hitherto seemingly empty land becomes teeming with busy life. Hundreds, not to say thousands of villages occupy the terraces overlooking the valley bottoms. Many of these villages were surprisingly large and must have harboured a considerable population. Their inhabitants were hunters and stock-raisers, but at the same time agriculturists, as is evidenced by their implements and by the finding of husks of rice in a potsherd at Yang Shao Tsun. The men were skilled carpenters and their womenfolk were clever at weaving and needlework. Their excellent ceramics, with few or no equals at that time, indicate that the then inhabitants of Honan and Kansu had developed a generally high standard of civilization. There must have been, by some means or other — new inventions or the introduction of new ideas from abroad — a rather sudden impetus that allowed the rapid spread of a fastgrowing population. 7

In order to solve this problem and to obtain a full understanding of the rise of the Chinese race, much more careful archaeological research will be needed in China proper and in its interior borderlands.

* * *

I have commenced this volume with a dedication to my friend Dr. Axel Lagrelius on the occasion of his eightieth birthday.

I wish to end it with an expression of hearty thanks to Professor Bernhard Karlgren, the present director of the Museum of Far Eastern Antiquities.

Dear Professor Karlgren. During the busy year when this volume was in preparation you have in a most generous way given me all kinds of facilities. First of all, you have sacrificed much time taken from your own important research work in order to place before me the right books and references and in order to guide me with your deep knowledge of things Chinese and with your well-balanced judgement.

You have also placed at my disposal the best helpers, many of them workers in our museum for many years, my special research assistant Mrs. Barbro Söderman, our skilled librarian Mrs. Birgit Vessberg, our very industrious Miss Lily Kling, Mrs. Ingrid Åhrfelt, our very skilled artist Mr. Sven Ekblom, and our excellent photographer Mr. Nils Lagergren.

At the moment of my departure I present my thanks to you and to all the other helpers with deep emotion because it is a departure from as many friends.

Outside the museum my thanks go also to Professor T. J. Arne, our learned colleague who has offered his help now as willingly as when I began this study 25 years ago.

I also wish to thank Dr. E. Dahr for his research on the animal bones and Professor Gregory Aminoff, who has studied the precious stones, with important results.

Dr. Carl Fries and Dr. Rudolf Söderberg have rendered very valuable help by identifying the *Cygnus musicus* of the Sha Ching urns.

My sincere thanks to you all!

As an old-fashioned Lao Yeh I am now returning to my native place, where I shall be near the tomb of my father and my grandfather and can render customary homage to their memory.

I sincerely hope that this war-ridden world will soon have peace and that in this peace will be included full integrity for all parts of China. You will then be going out to the Far East for new research; please take with you my warmest greetings to many old friends.

I hope you will meet Dr. Wong Wen Hao, the strong little man who during these years of tremendous struggle has rendered such excellent service to his fatherland.

Dr. Wong will tell you about Dr. V. K. Ting, whom you met once in Gothemburg, a man without equal, as searching in his criticism as he was faithful in his friendship.

You will also meet Dr. Fu Ssu Nien, the Director of the Department of History and Philology within the Academia Sinica, an extremely jovial and charming man of wide scientific vision. You will meet Dr. Li Chi of Anyang fame, Dr. Liang Ssu Yung, who has added to his father's renown a name of his own. Please also give my best regards to Mr. Chi Yien Pei, who worked with me in Hsi Kang in 1937.

I hope you will also meet Dr. C. C. Wong, the productive vertebrate palaeontologist, and Dr. W. C. Pei, the discoverer of the first *Sinanthropus* skull and the man who solved the riddle of the Chou Kou Tien implements.

What a number of brilliant scholars you are going to meet! Kindly convey my heartiest thanks and my most respectful regards to all of them.

EXAMINATION OF BRONZE SPECIMENS.

Through the kindness of Dr. P. Geijer, Director of the Geological Survey of Sweden, Dr. Sture Landergren, Head of the Geochemical Laboratory of the Geological Survey, has undertaken spectroscopical tests of some of our bronze specimens. The results are as follows:

- I. Bronze knife (K 2392) Kansu, T'ao Sha Hsien, Hui Tsui.
Main element: Cu.
Principal accessory element: Pb (1—10%).
Accessory elements: Sn, As, Sb, Bi (0,5—5 %), Ag, Au (< 1 %).
- II a. Small bronze piece (K 2255: 15) from Hui Tsui:
Main element: Cu.
Principal accessory element: Pb (1—10 %).
Accessory elements: Sn, As, Sb, (0,5—5 %) Bi, Ag, Au (< 1 %).
- II b. Small bronze piece (K 2255: 16) from Hui Tsui:
Main element: Cu.
Principal accessory element: Sn (1—10 %).
Accessory elements: Pb, Zn, As, Ag? (< 0,1 %).
- III. Small bronze link (K 2406) from Kansu, Hsi Ning Hsien, Ch'ia Yao. Skel. 7: 11 x₁:
Main element: Cu.
Principal accessory elements: Pb, As, Bi (1—10 %).
Accessory elements: Sn?, Ag (< 0,1 %).

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A. The Sinanthropus site of Chou K'ou Tien near Peking.



B. The Lo Han T'ang site (Early Yang Shao age), Kueite Hsien, Kansu.



A. The Wa Kuan Tsui burial site. Pan Shan hills. Kansu.



B. Hsin Tien village and the T'ao valley with the terrace escarpment. Kansu.



A. The Sha Ching site in the desert. The Chen Fan oasis in the distant background. Kansu.



B. The Chu Chia Chai site in the Hsi Ning Ho valley. Kansu.



A. The Wa Kuan Tsui burial site. Pan Shan hills. Kansu.



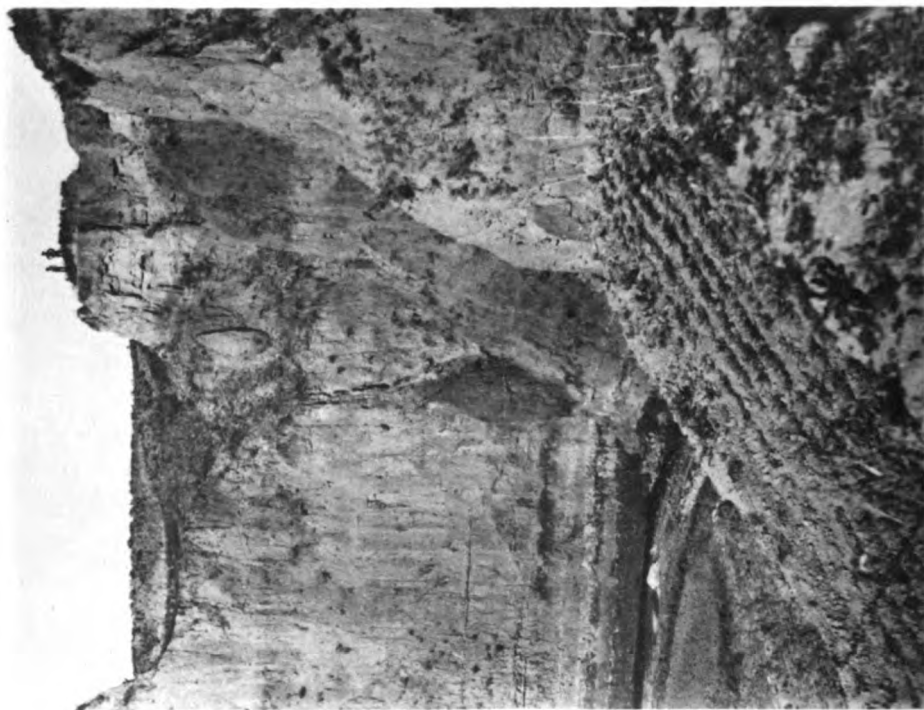
B. Hsin Tien village and the T'ao valley with the terrace escarpment. Kansu.



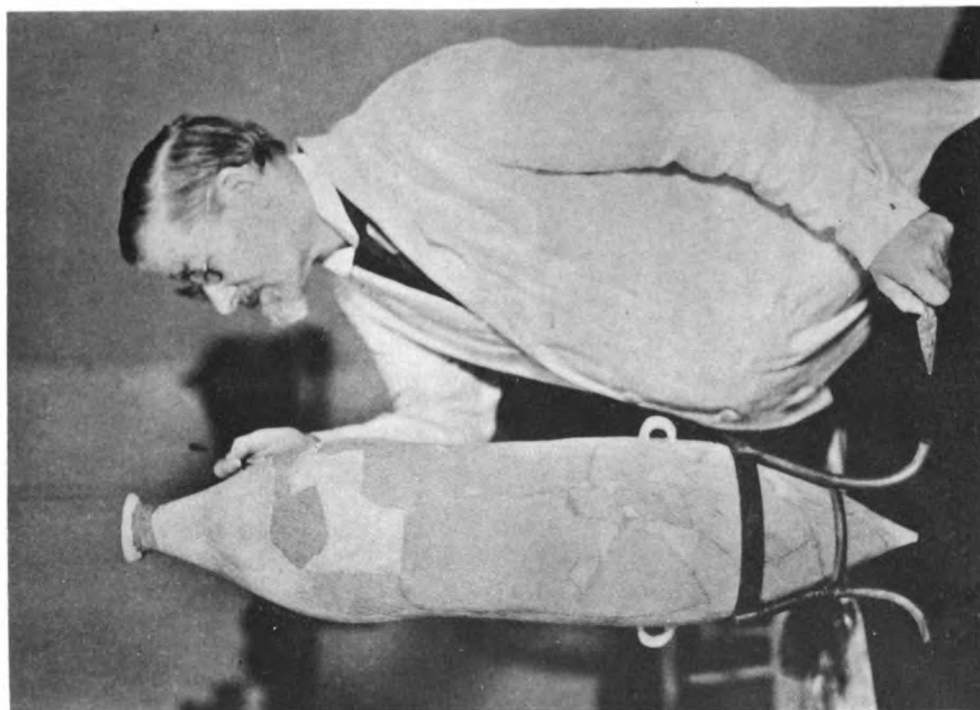
A. The Sha Ching site in the desert. The Chen Fan oasis in the distant background. Kansu.



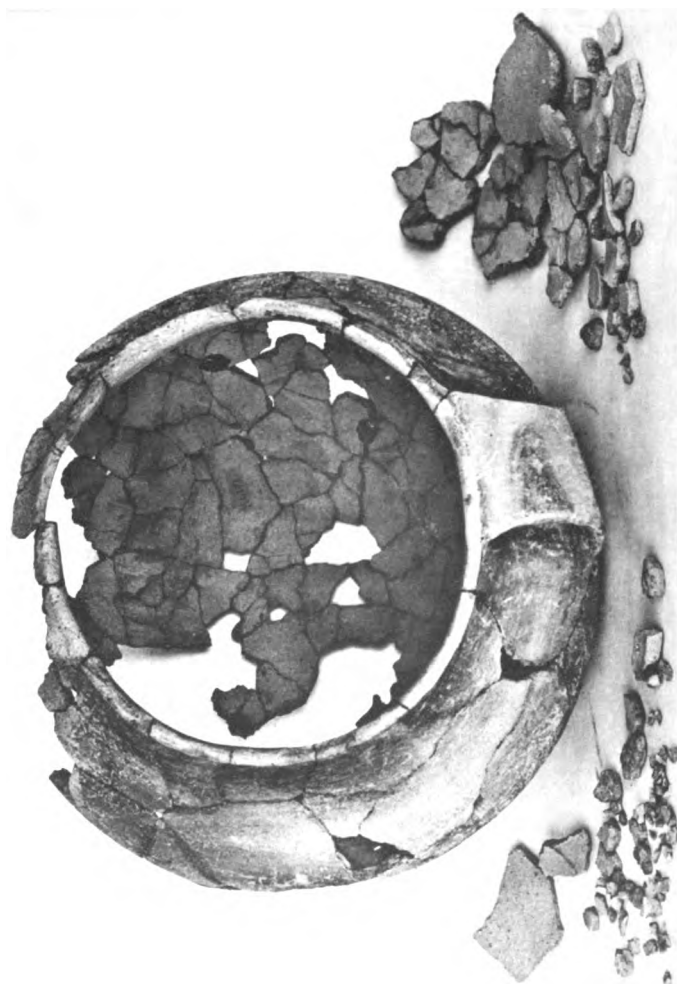
B. The Chu Chia Chai site in the Hsi Ning Ho valley. Kansu.



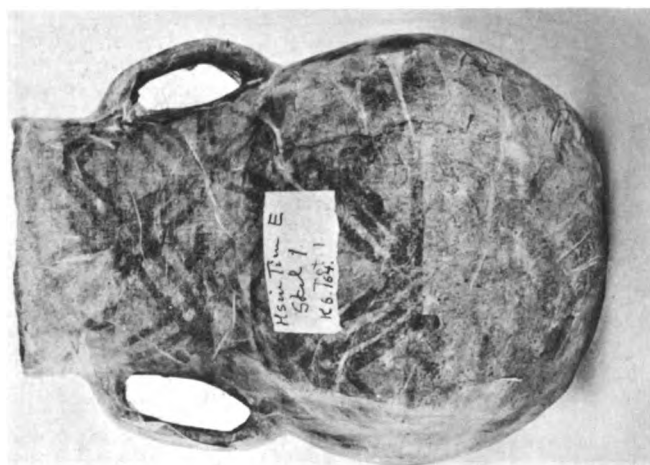
Yang Shao Tsun. Honan. These ravines did not exist when the Prehistoric Yang Shao people lived here.



Mr. Gräns in the course of his restoration work.



A. Sha Ching urn in the process of restoration.



B. Hsin Tien urn bandaged with thin Chinese paper.



1



2



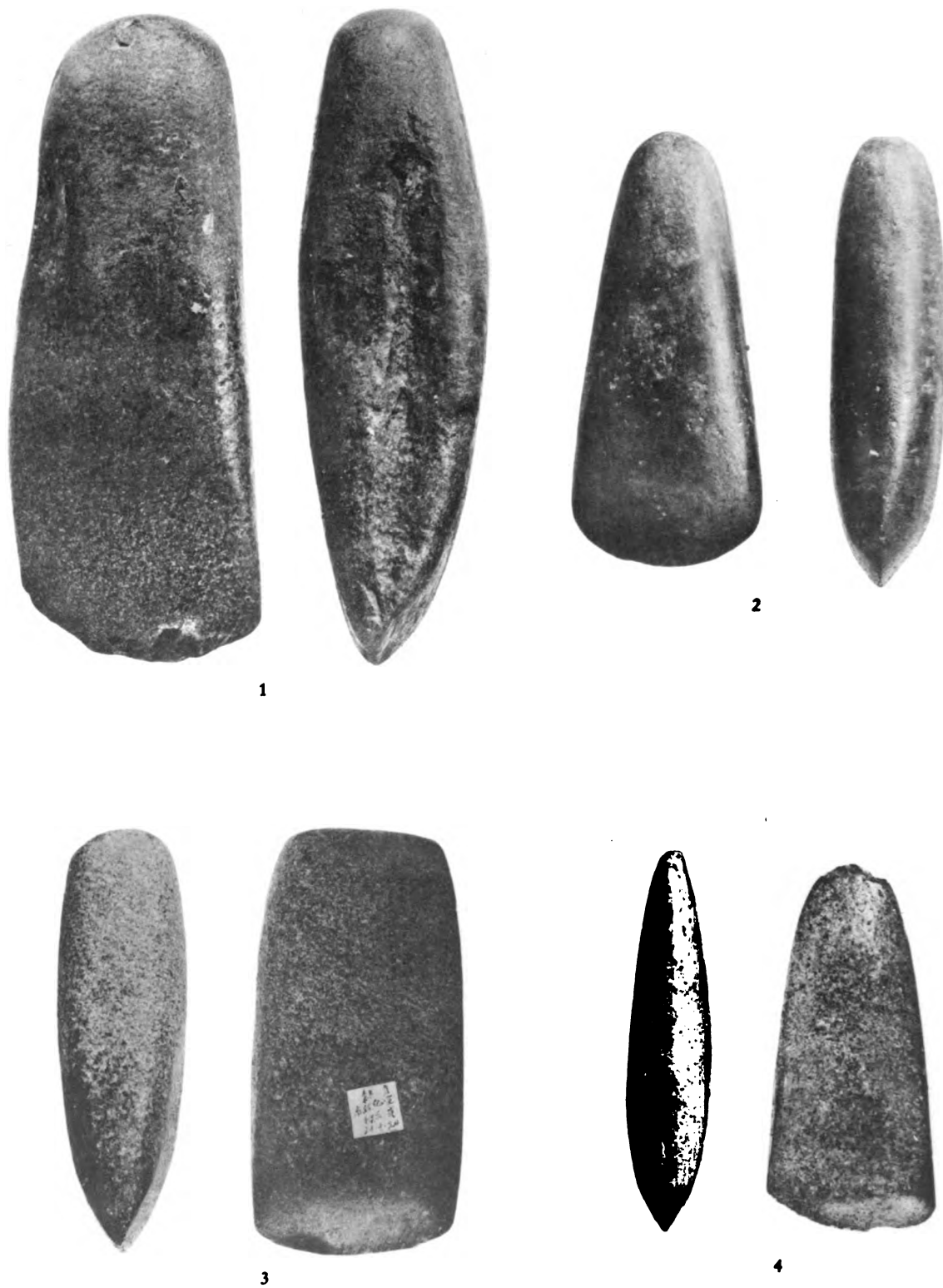
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4



Various stone implements. 1 = $\frac{1}{3}$. 2—4 = $\frac{1}{2}$.

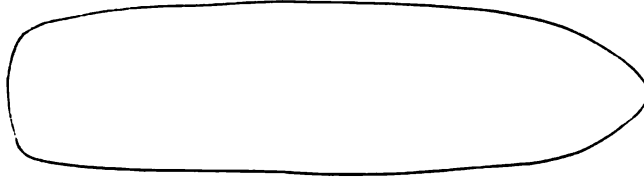
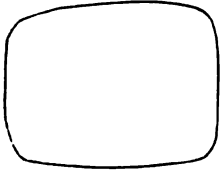


Various stone axes. $\frac{1}{2}$.

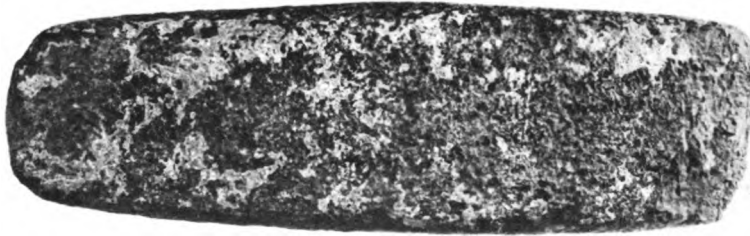
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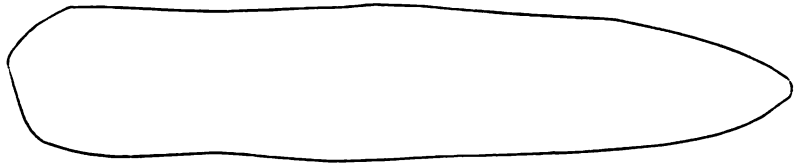
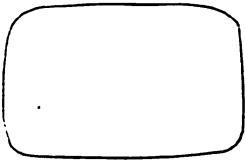
Monan



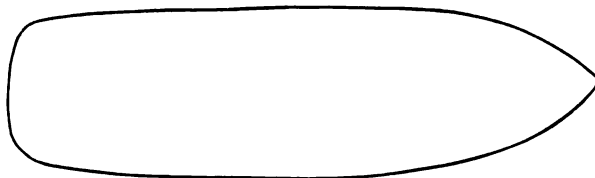
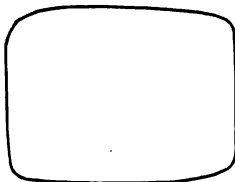
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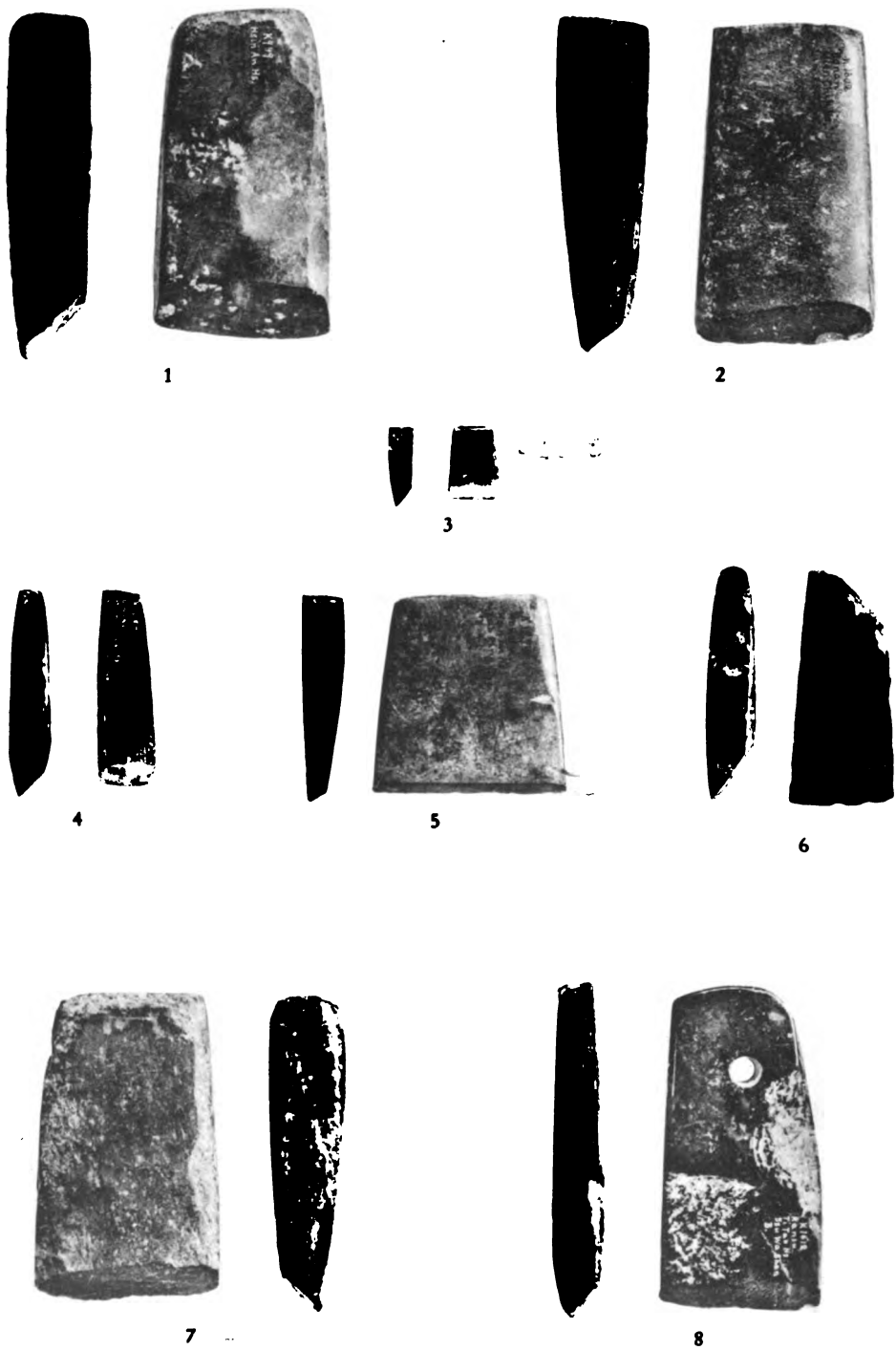
Monan



3



The Yang Shao stone axe. Pu Chao Chai. $\frac{1}{2}$.



Stone adzes (in Chinese *Pen*) 1/2.



1



2



3



4



5

pen



6

Various stone implements. $\frac{1}{2}$.



1



2



3



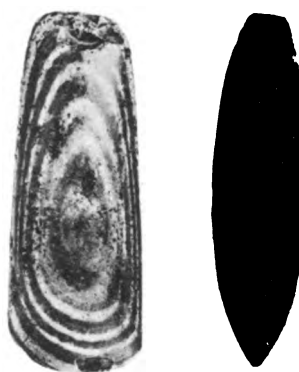
4



The northern rounded axe. 3 = $\frac{1}{2}$. 1, 2, 4 = $\frac{1}{3}$.

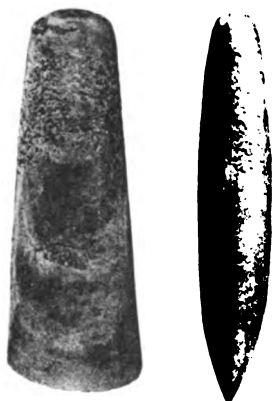


1



2

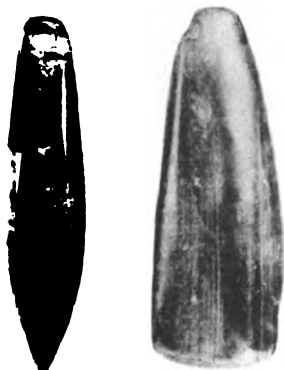
Mongolia —



3



4



5



6

The northern rounded axe. $\frac{1}{2}$.



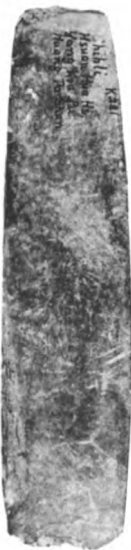
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SHANSI



2

SHIH LI



3

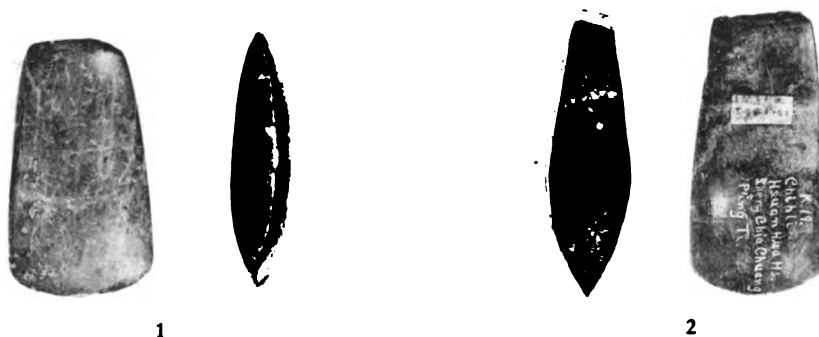
SHIH LI



4

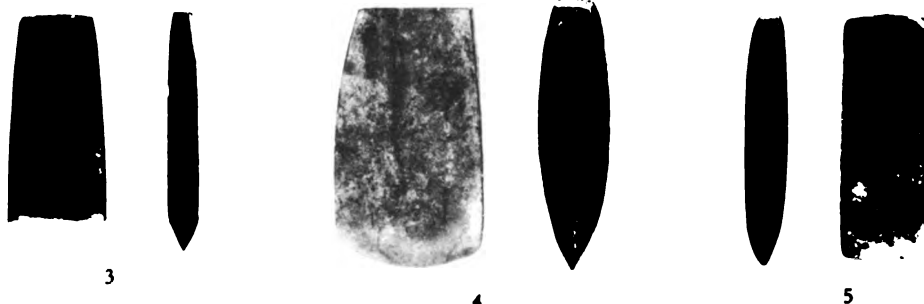
SHANSI

The northern type of polished square-cut axe. 1/2.



1

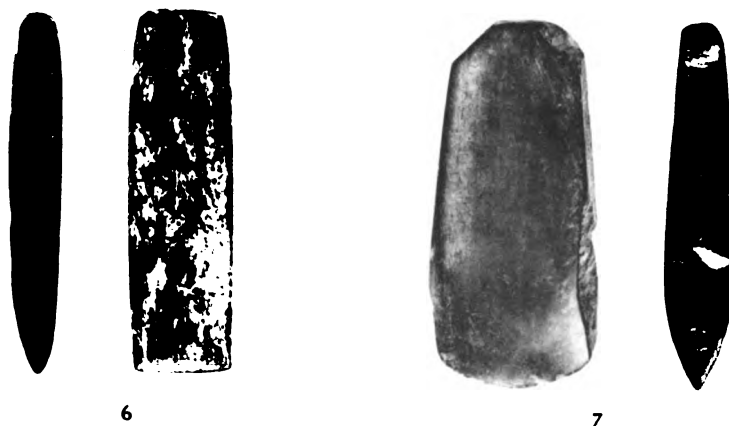
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3

4

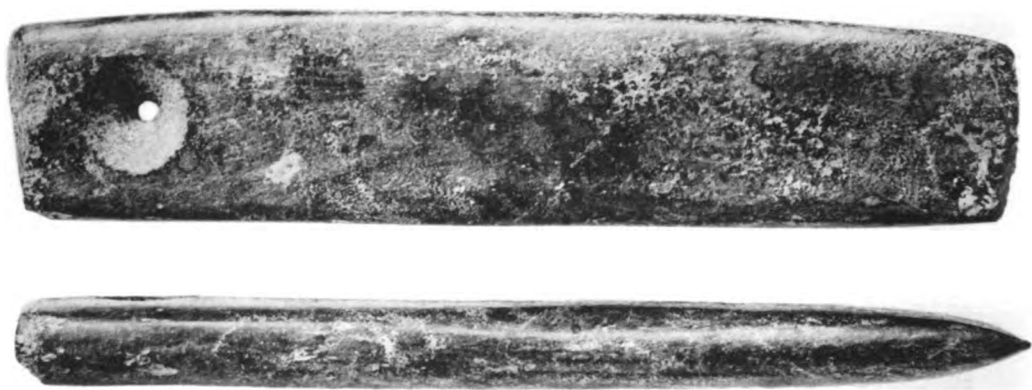
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6

7

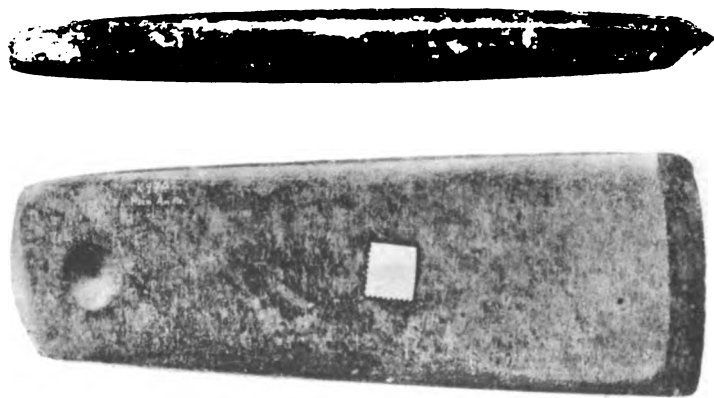
Small specimens of the northern type of polished square-cut axe. $\frac{1}{2}$.



1



2



3

Slender perforated "axes". 1/2.



1



2



3



4

Broad thin perforated "axes". 1/2.



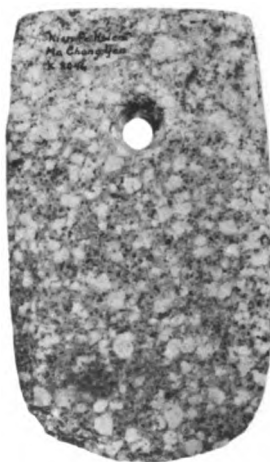
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2



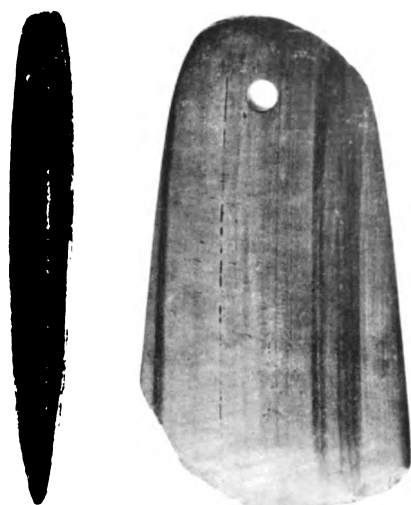
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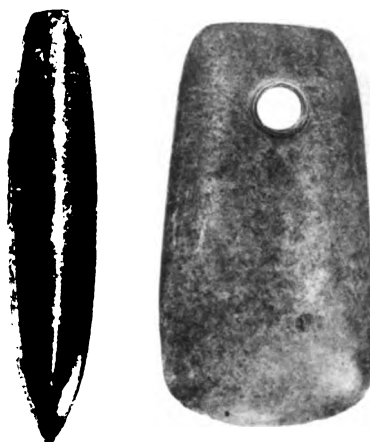
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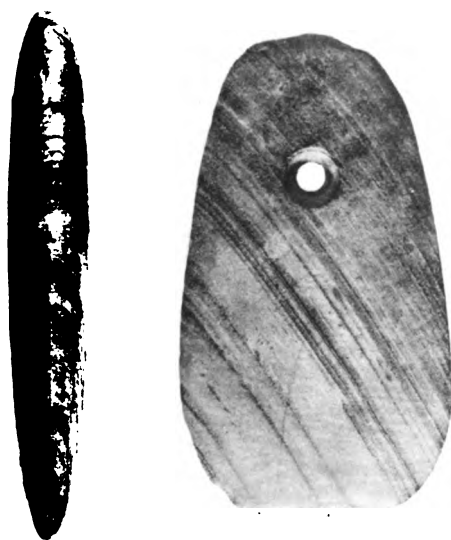
Broad thin perforated "axes". $\frac{1}{2}$.



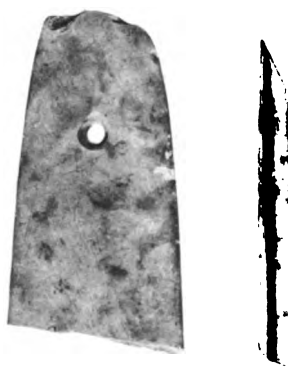
1



2

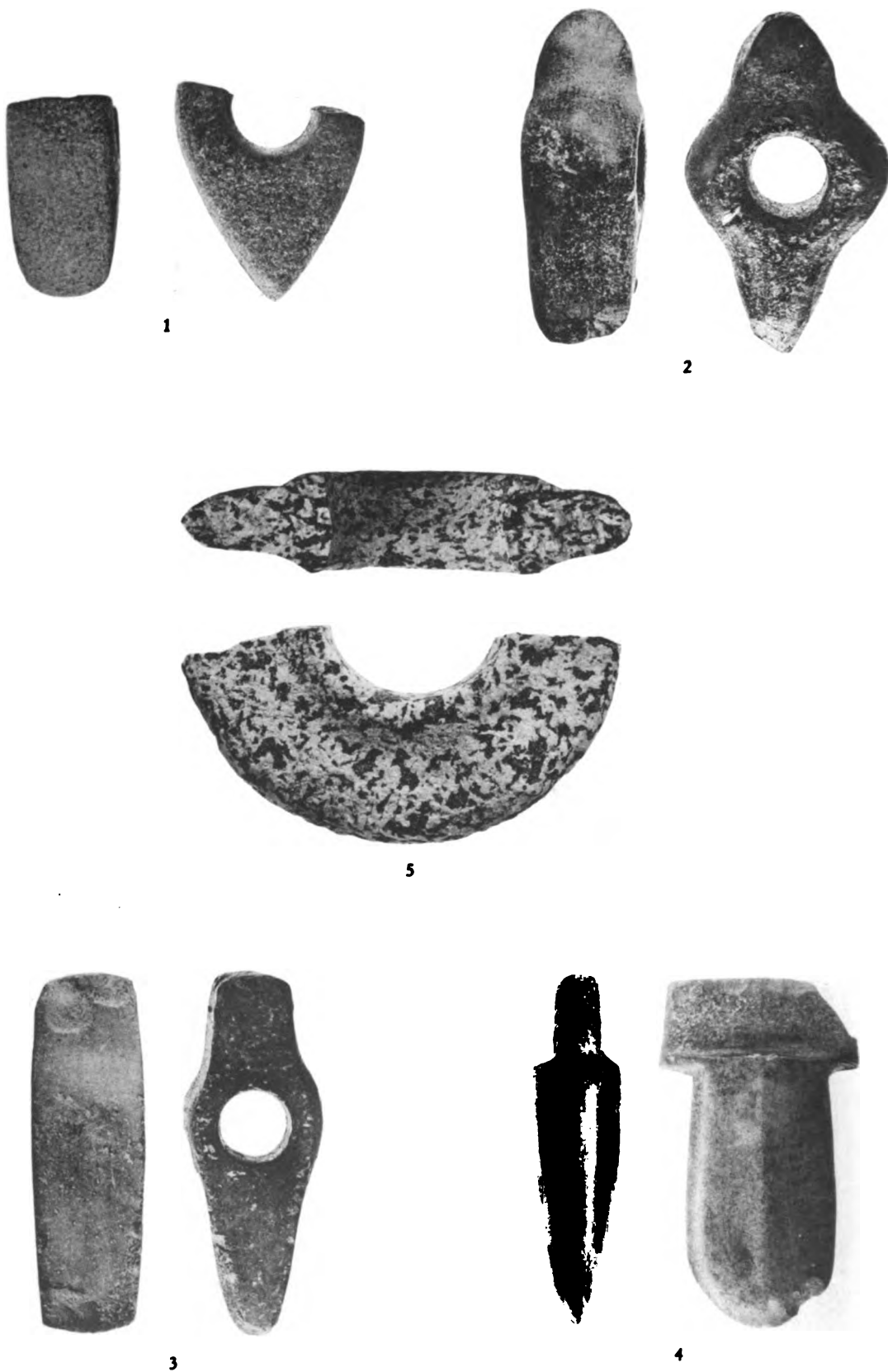


3



4

Rounded perforated "axes". $\frac{1}{2}$.



Various stone objects. $\frac{1}{2}$.



1



2



3



4



5



6



Various stone objects. $\frac{1}{2}$.



Various stone objects. $\frac{1}{2}$.



1

HO-YIN-HSIEN, W. HONAN



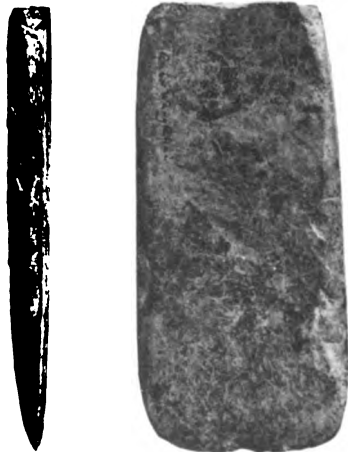
2

HONAN



3

W. HONAN



4

W. HONAN

Agricultural limestone hoes of the Yang Shao culture. 1/3.



1



2

WEST-HONAN



3



4



5



6

Agricultural hoes. $\frac{1}{3}$.



1



2



3



4

Hoes of the broad northern type. $\frac{1}{3}$.



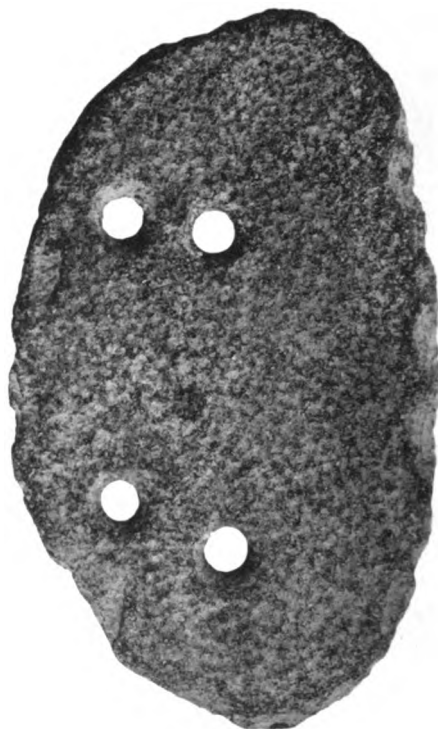
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2



3



4

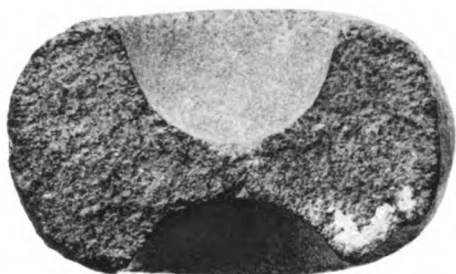
Sounding stones. $\frac{1}{8}$.



1



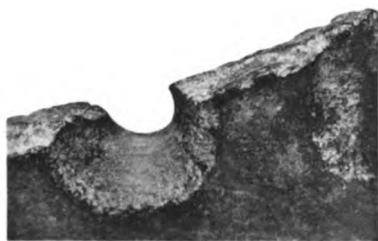
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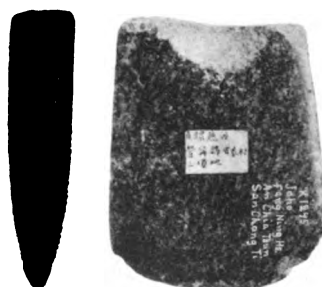
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4



5



6



7



8

Prehistoric methods of boring. 1, 6, 8 = $\frac{1}{2}$. All the rest = $\frac{1}{1}$.



1



2



3

Black pottery, Honan. 1 = $\frac{1}{2}$, 2 = $\frac{1}{3}$, 3 = $\frac{1}{2}$.



1



2



3

Black pottery, Honan. 1--2= $\frac{1}{3}$, 3= $\frac{1}{4}$.



1



2

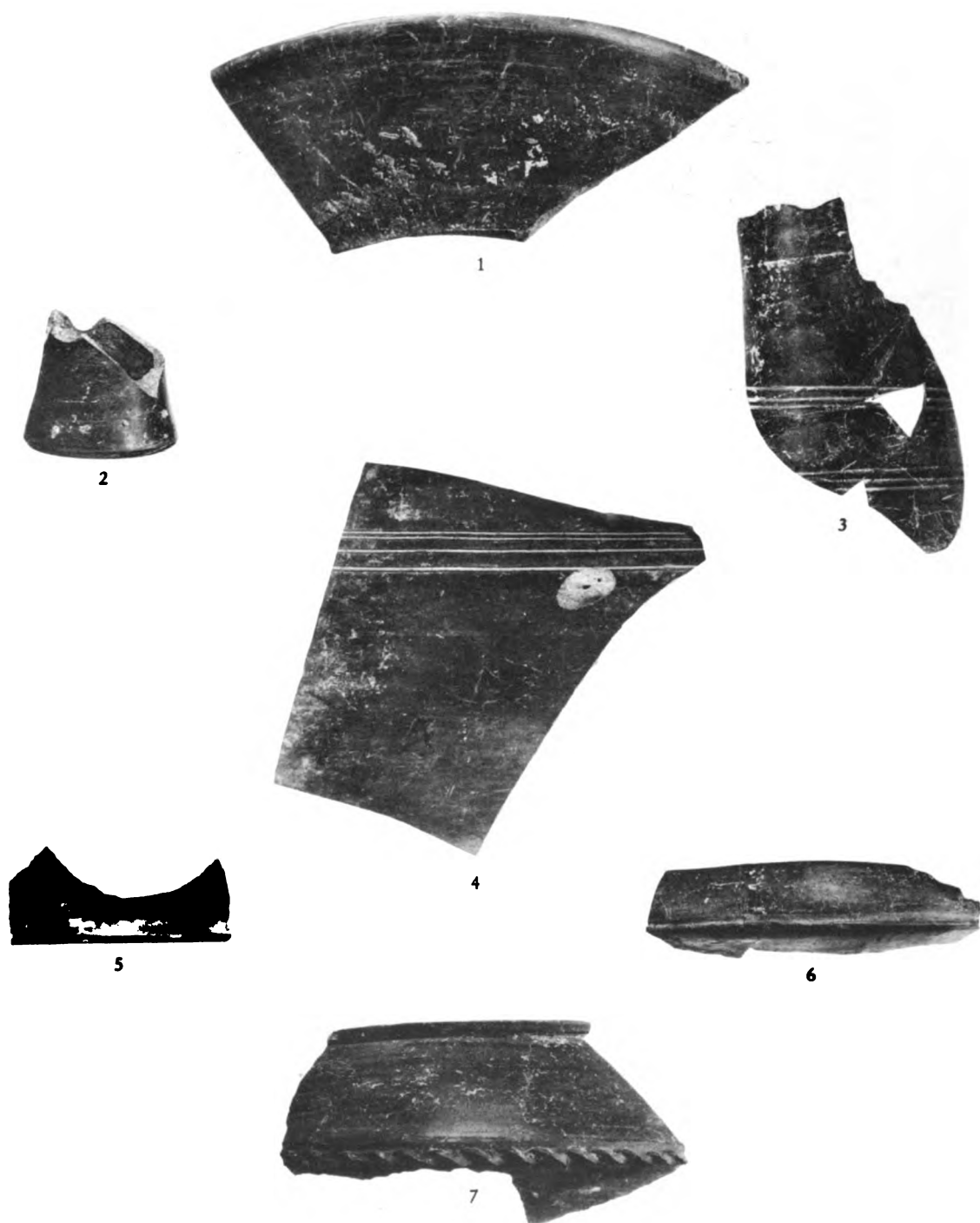


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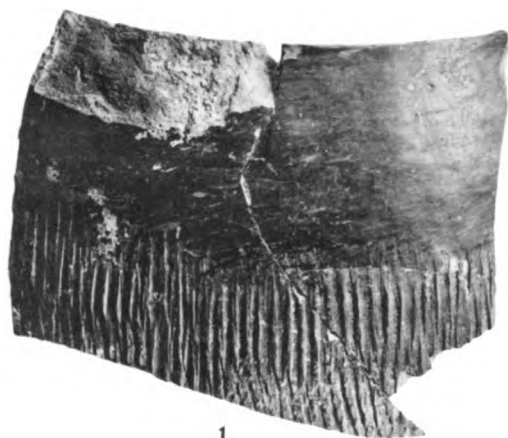


4

Black pottery, Honan. 1/2.



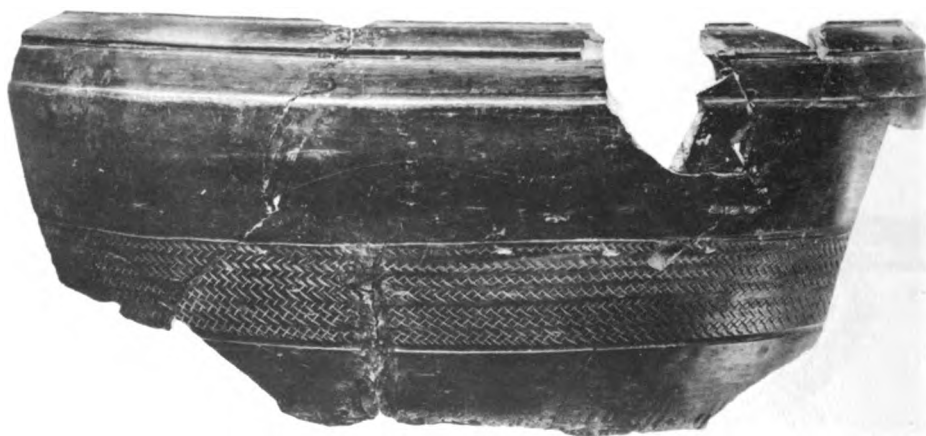
Black pottery, Honan. 1—5= $\frac{1}{2}$, 6—7= $\frac{1}{8}$.



1



2



3

Black pottery, Honan. $\frac{1}{3}$.



1



2



3



4

Black pottery, Honan. 1—3= $\frac{1}{2}$, 4= $\frac{1}{3}$.



Black pottery. Honan. 1 & 3= $\frac{1}{2}$, 2= $\frac{1}{8}$.

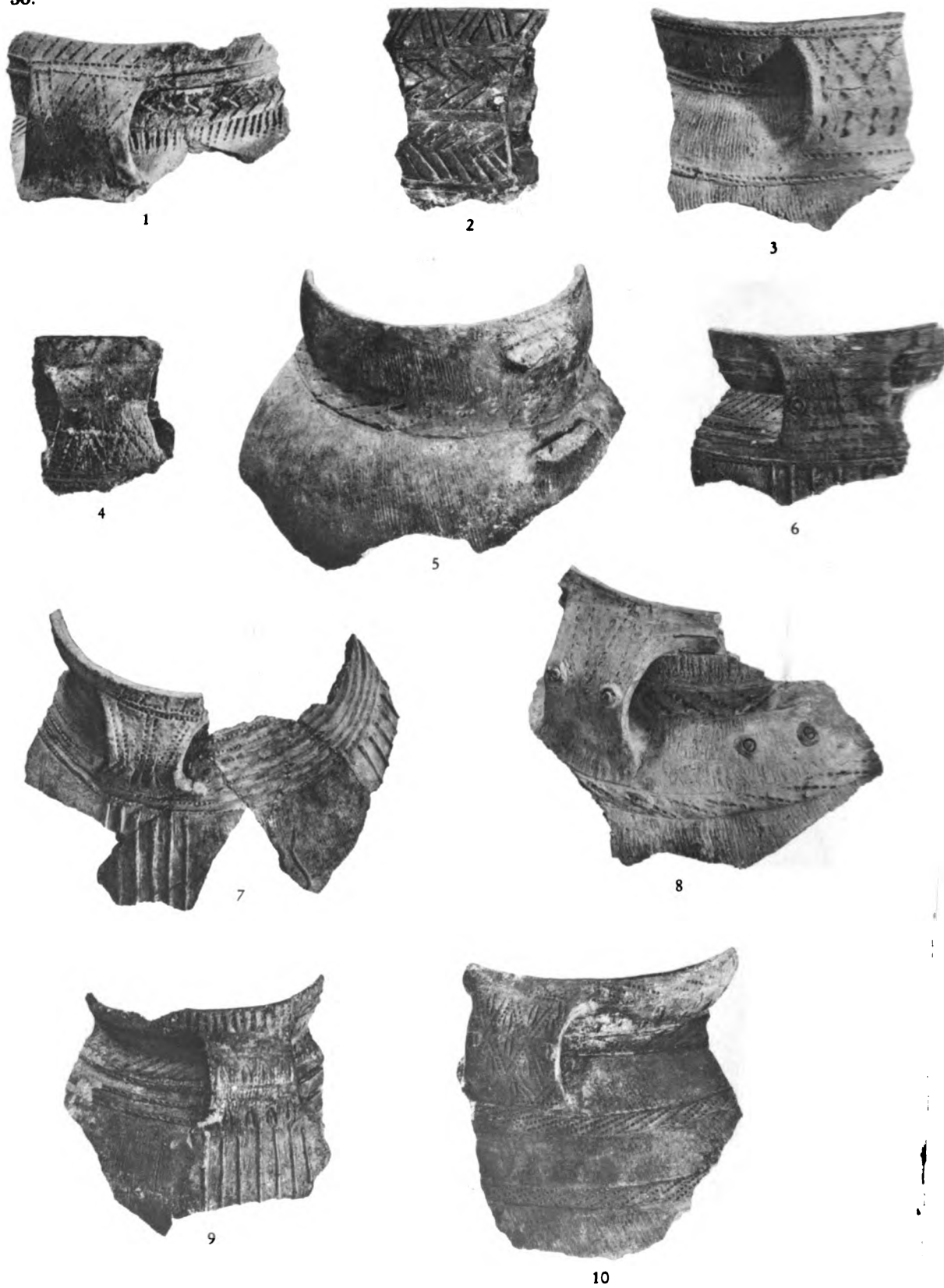


1



2

Eggshell pottery, Honan. $\frac{2}{3}$.



The Ch'i Chia P'ing stage. Kansu.



1



2



3



4

The Ch'i Chia P'ing stage. Kansu. 1/2.



The Ch'i Chia P'ing stage. Kansu. $\frac{1}{3}$.



1

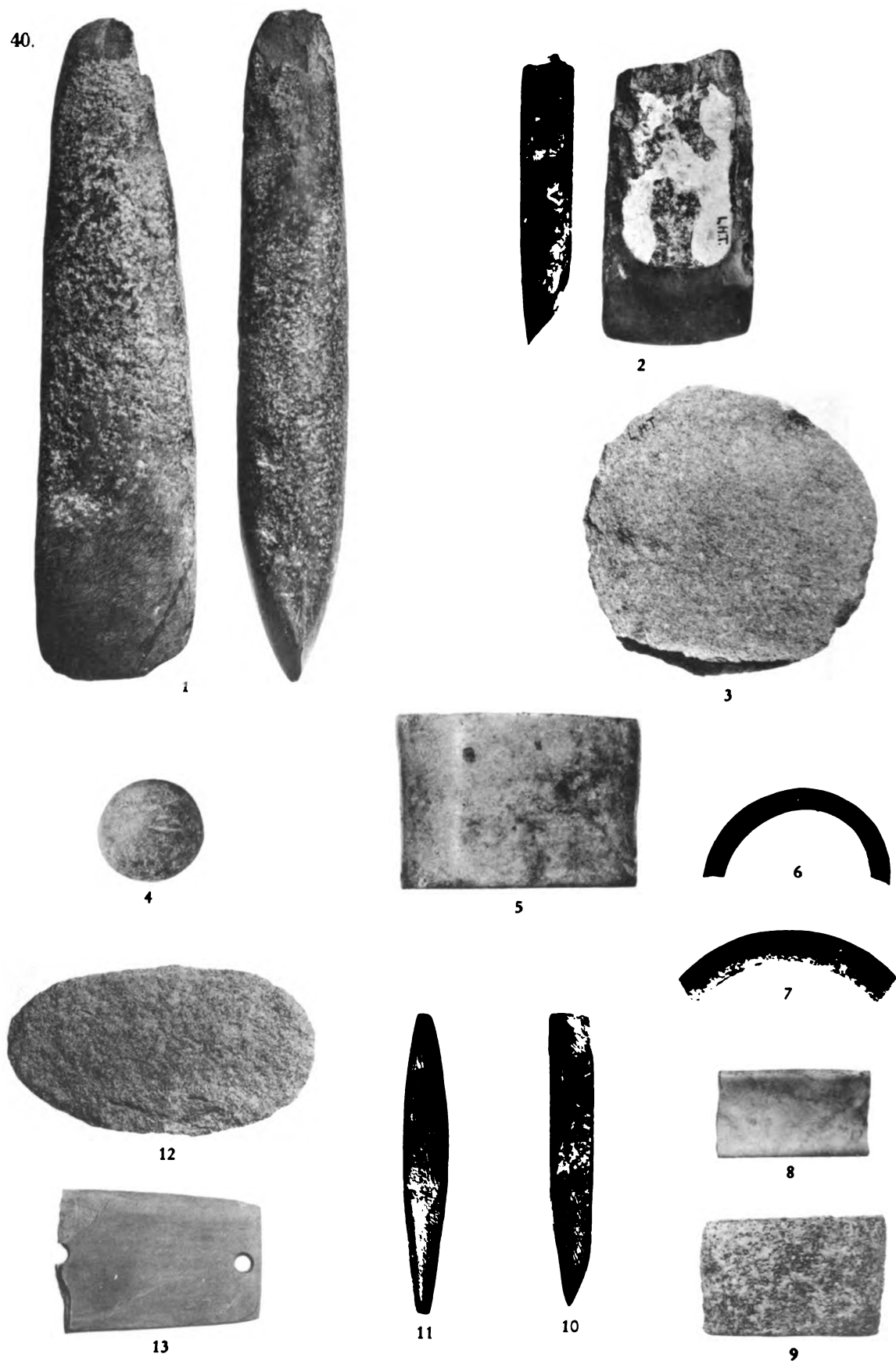


2



3

The Ch'i Chia P'ing stage. Kansu. 1= $\frac{1}{2}$, 2-3= $\frac{1}{3}$.



The Lo Han T'ang W. site. Kansu. (Early Yang Shao) $\frac{1}{2}$.



The Lo Han T'ang W. site. Kansu. (Early Yang Shao) 1/1.



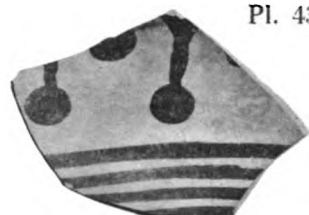
The Lo^u Han T'ang W. site. Kansu. (Early Yang Shao) $\frac{1}{3}$.



1



2



3



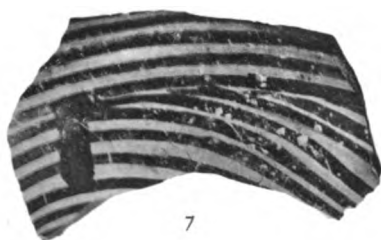
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7



8



9



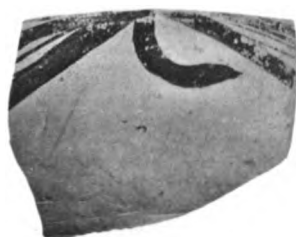
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11



12

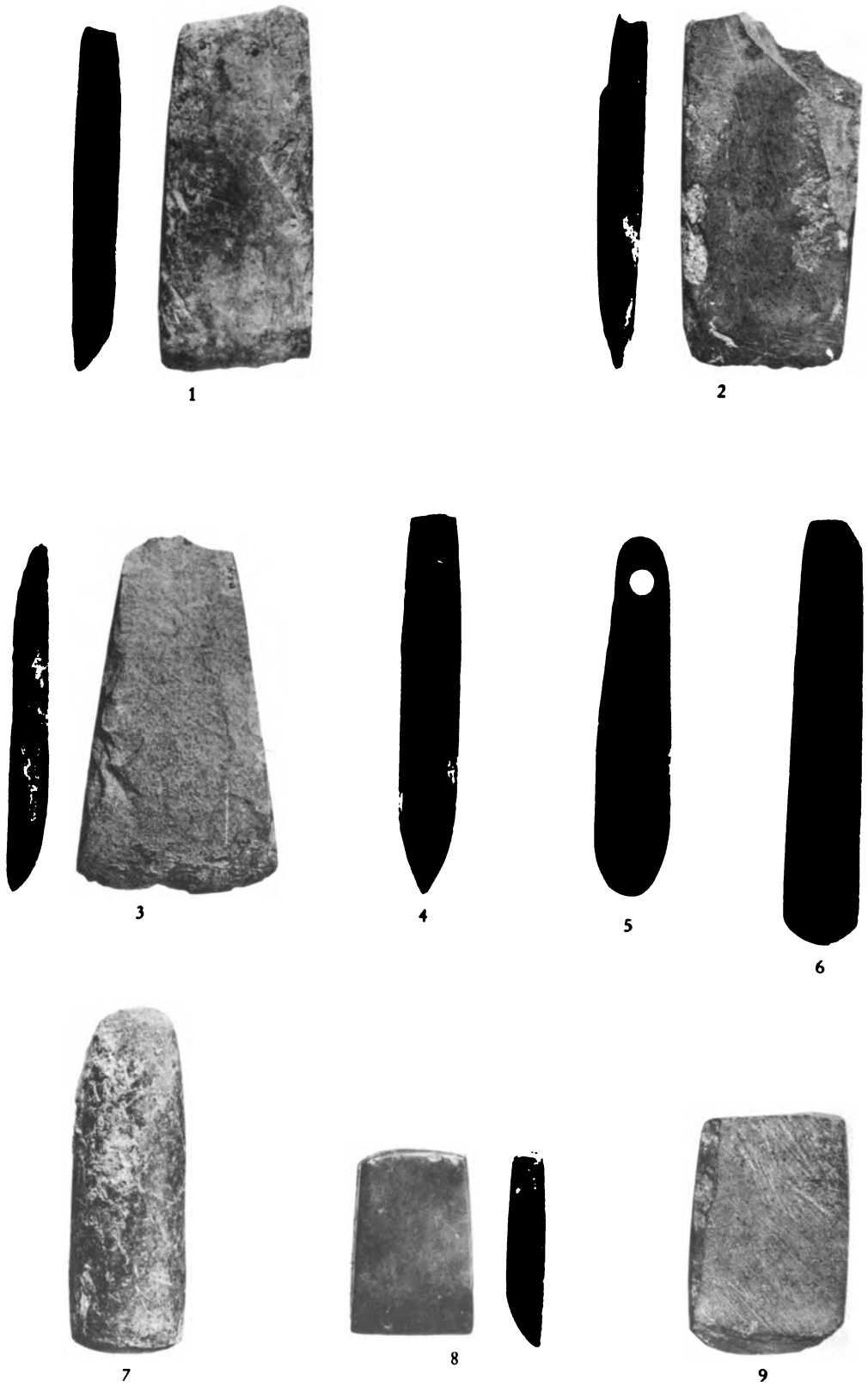


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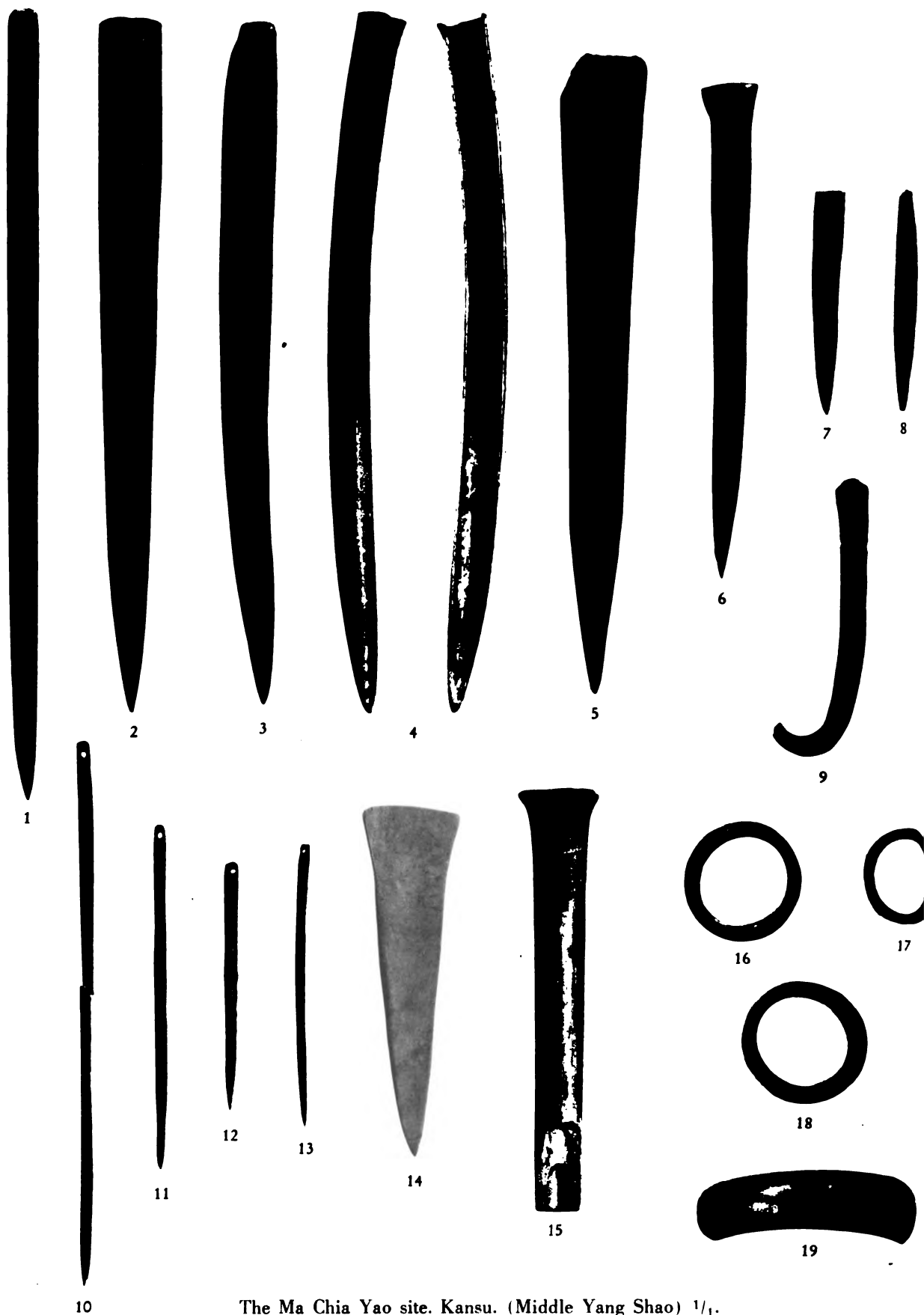
The Lo Han T'ang W. site. Kansu. (Early Yang Shao) All $\frac{1}{2}$ except 9—10= $\frac{1}{1}$.



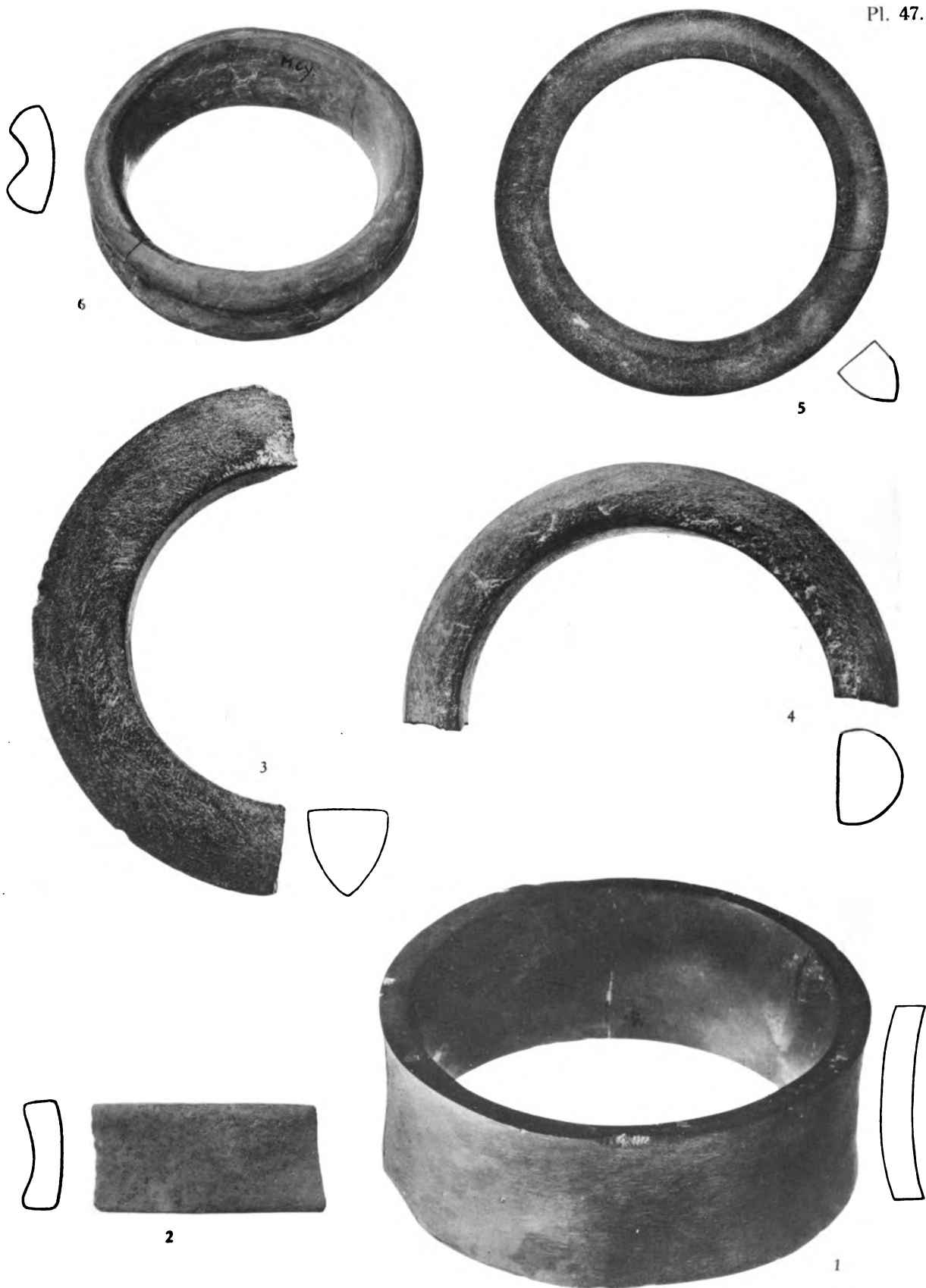
The Ma Chia Yao site. Kansu. (Middle Yang Shao) 1—3, 7—8 = $\frac{1}{2}$, 4—5, 6, 9 = $\frac{1}{1}$.



The Ma Chia Yao site. Kansu. (Middle Yang Shao) 13 & 15 = $\frac{1}{1}$, the rest = $\frac{1}{2}$.



The Ma Chia Yao site. Kansu. (Middle Yang Shao) $\frac{1}{1}$.



The Ma Chia Yao site. Kansu. (Middle Yang Shao) 1, 1.



The Ma Chia Yao site. Kansu. (Middle Yang Shao) $\frac{1}{1}$.



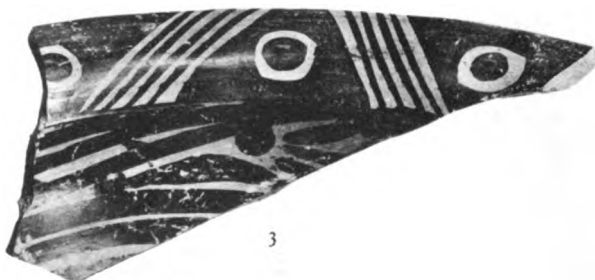
2 a



1



2 b



3

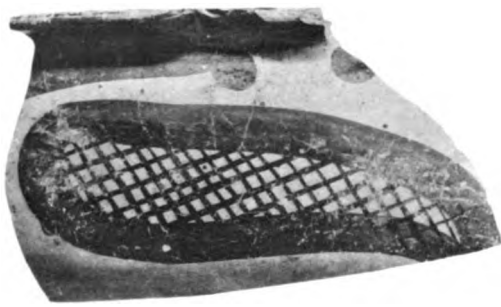


4 a

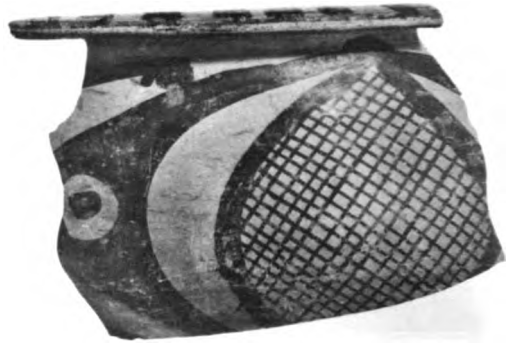


4 b

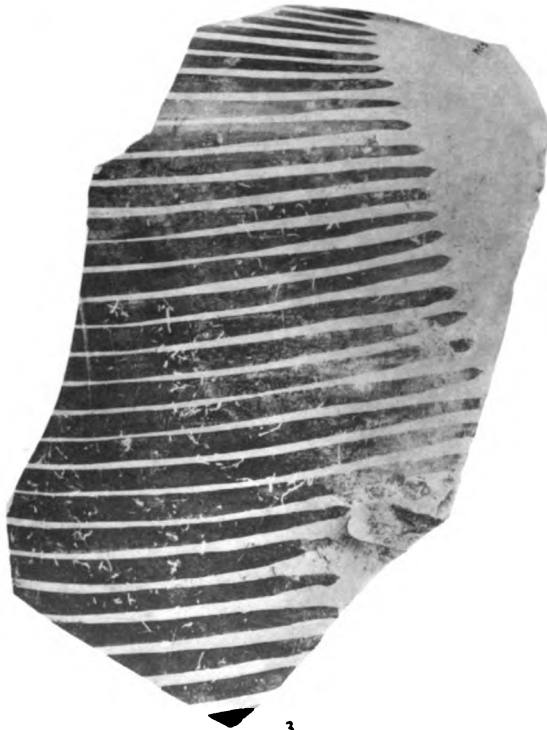
The Ma Chia Yao site. Kansu. (Middle Yang Shao) $\frac{1}{2}$.



1



2



3



4a



4b



5

The Ma Chia Yao site. Kansu. (Middle Yang Shao) $\frac{1}{2}$.



1



2



3



4



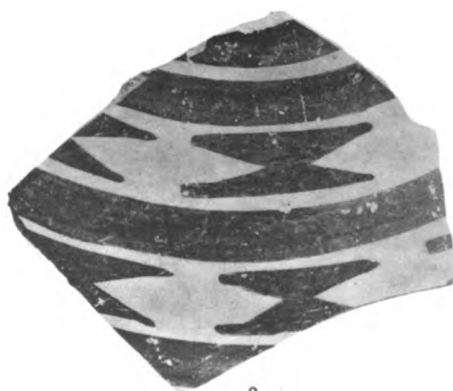
5



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7



8

The Ma Chia Yao site. Kansu. (Middle Yang Shao) 1/2.



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3



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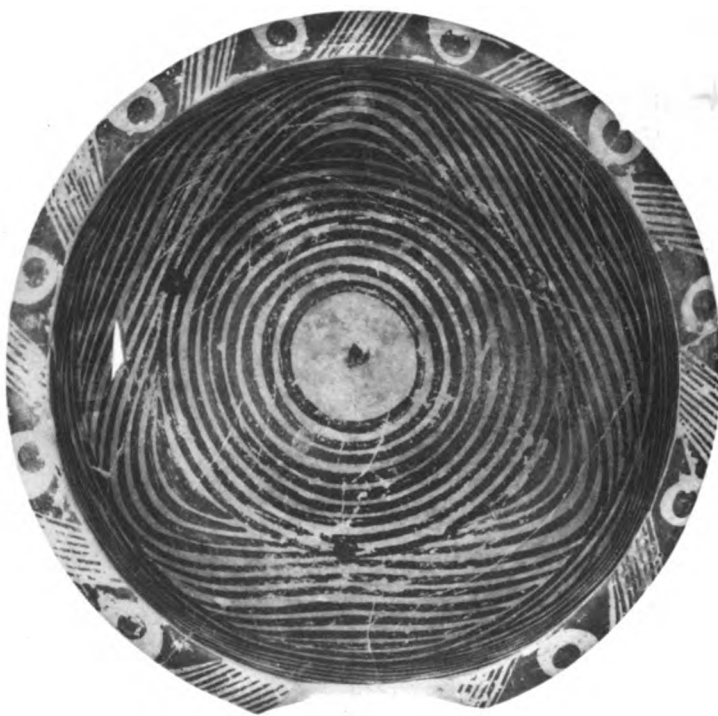


6

The Ma Chia Yao site. Kansu. (Middle Yang Shao) 1—4 & 6= $\frac{1}{2}$, 5= $\frac{1}{1}$.



1 a



1 b



1 c

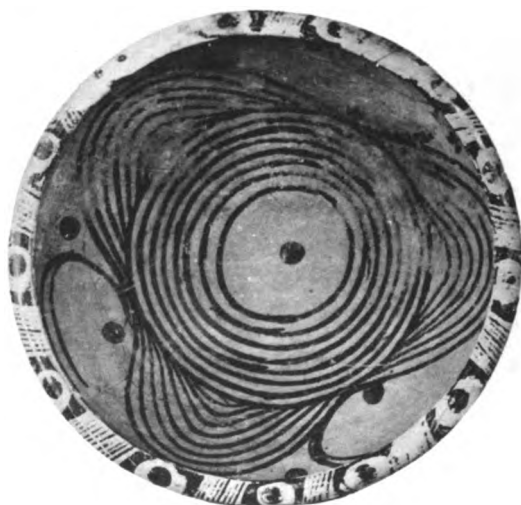
Ma Chia Yao painted pottery. (Middle Yang Shao) $\frac{1}{3}$.



1 a



1 b



2 a



2 b

Ma Chia Yao painted pottery. (Middle, Yang Shao) 1 = $\frac{1}{3}$, 2 = $\frac{1}{4}$.



1



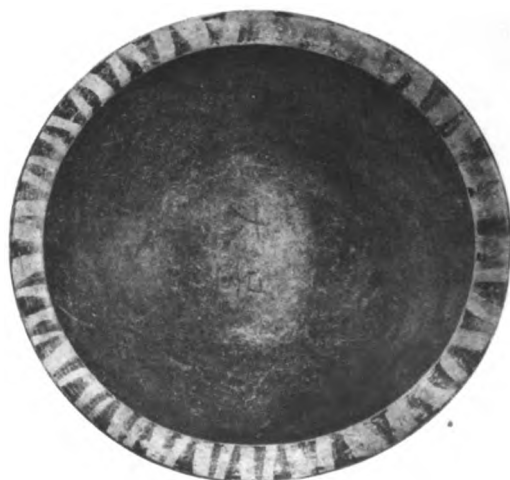
2 a



2 b



3 a



3 b

Ma Chia Yao painted pottery. (Middle Yang Shao) 1 = $\frac{1}{3}$. 2 = $\frac{1}{5}$. 3 = $\frac{1}{4}$.



1b



1a



2

Ma Chia Yao painted pottery. (Middle Yang Shao).



1



2



3 a



3 b

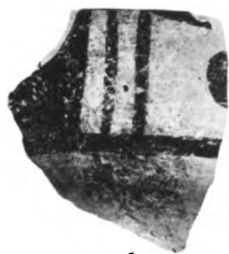


4



5

The Ma Chia Yao painted pottery. (Middle Yang Shao).



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11



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13



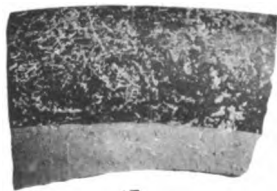
14



15



16



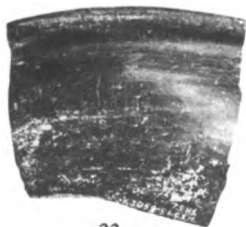
17



18



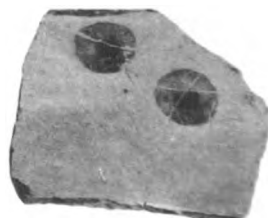
19



22

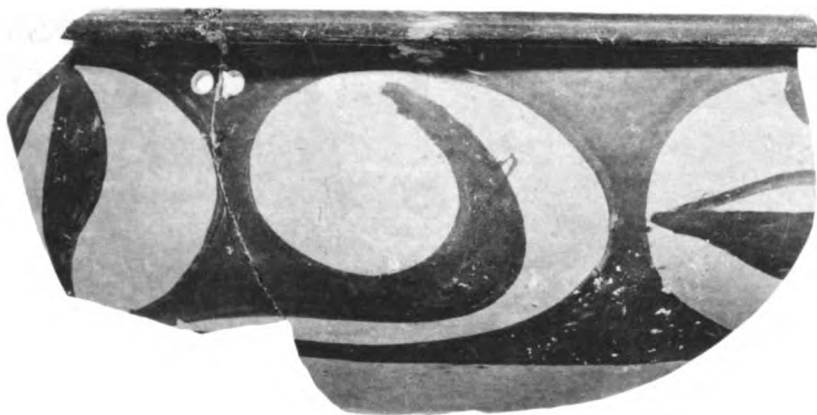


21



20

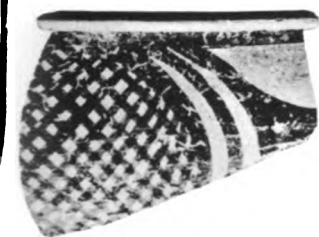
Yang Shao sites of S. Kansu. 1/2.



1



2



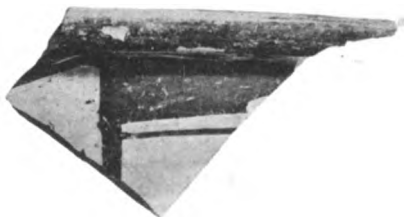
3



4



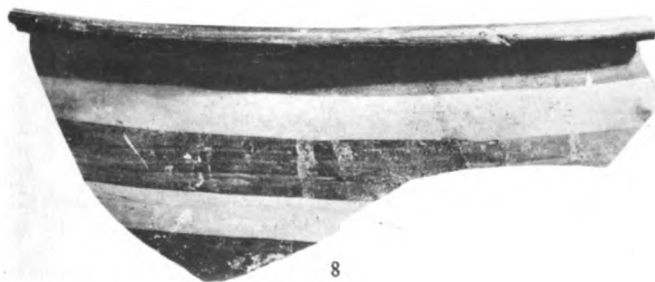
5



6

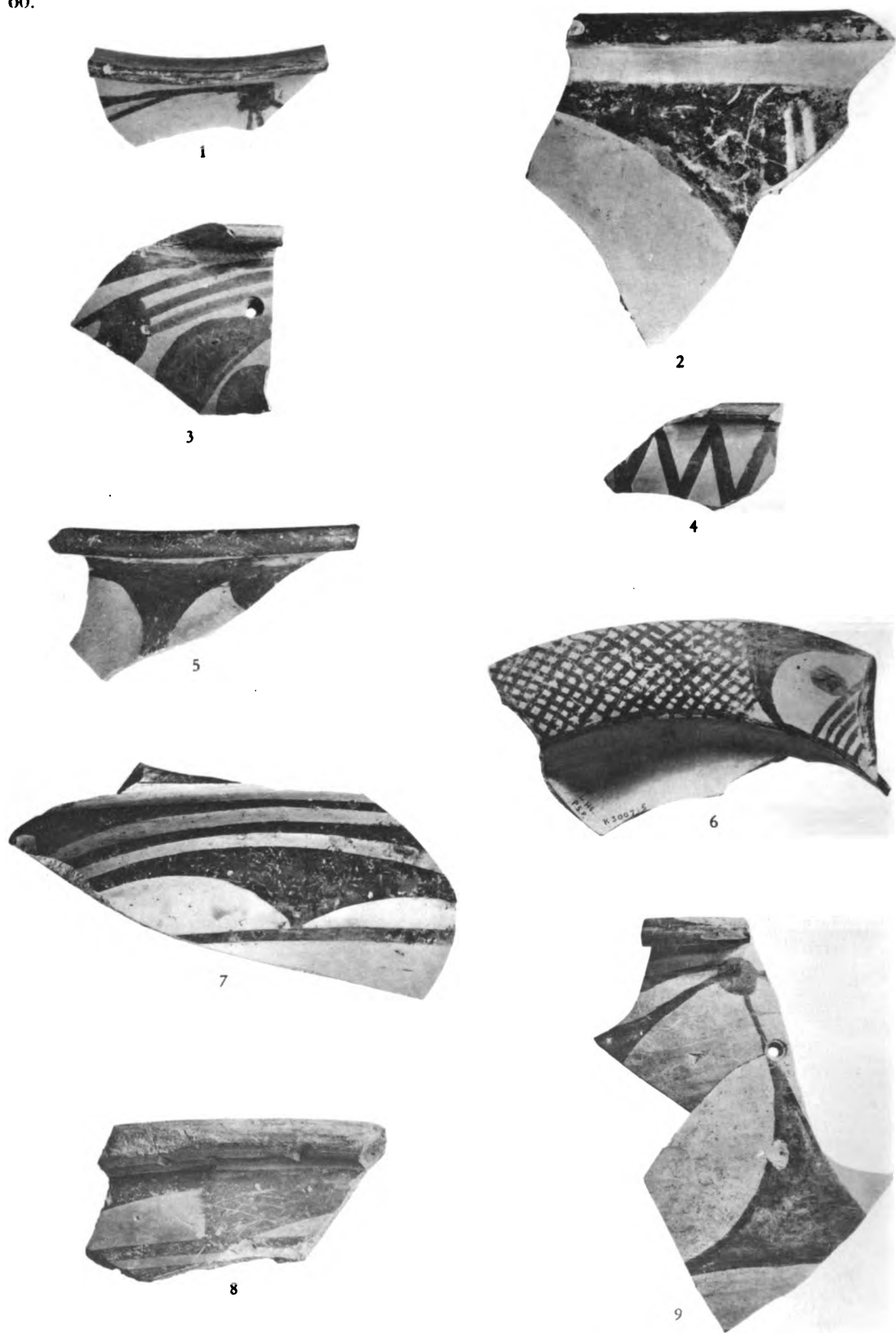


7



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Yang Shao sites of S. Kansu. 1½.



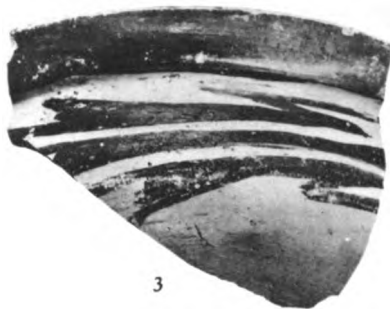
Yang Shao sites of S. Kansu. 1/2.



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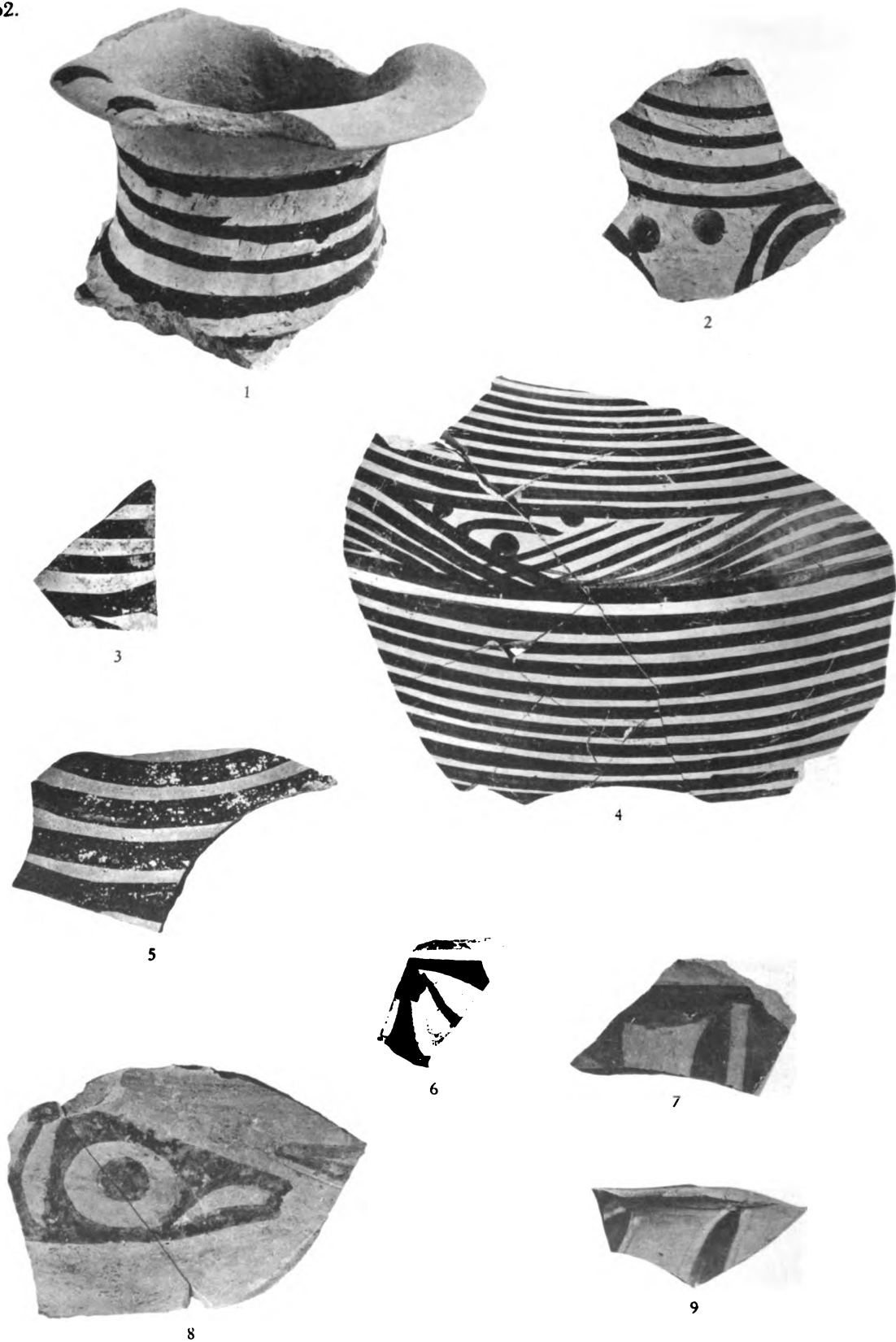


13

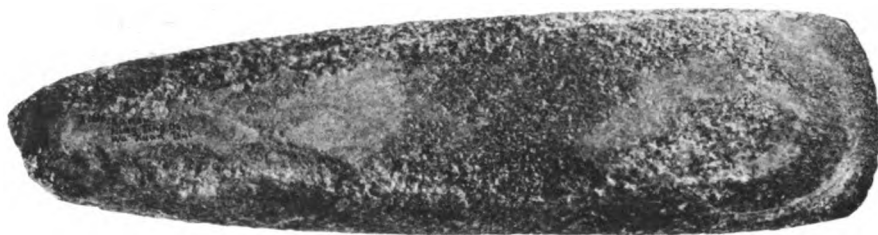


14

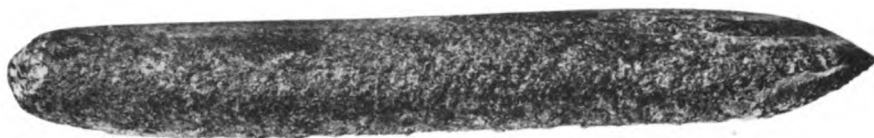
Yang Shao sites of S. Kansu. 1/2.



Yang Shao sites of S. Kansu. 1/2.



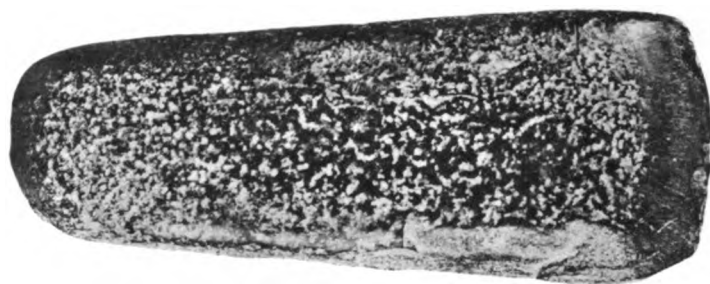
1



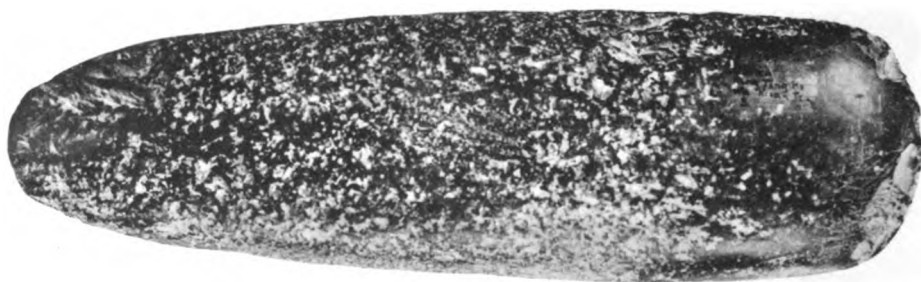
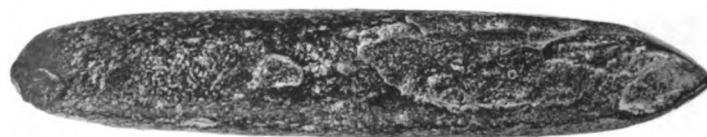
2



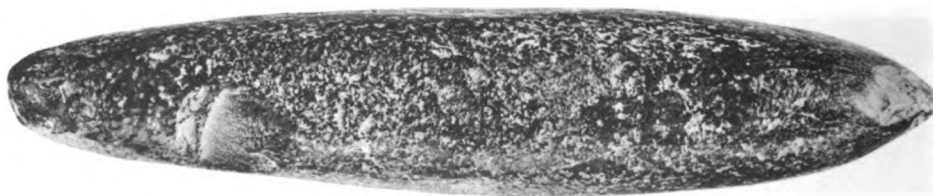
Axes from the Pan Shan graves. $\frac{1}{2}$.



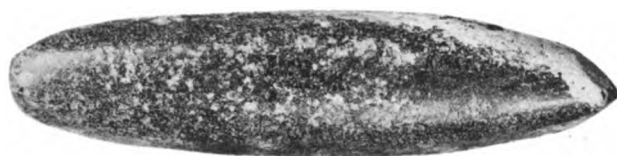
1



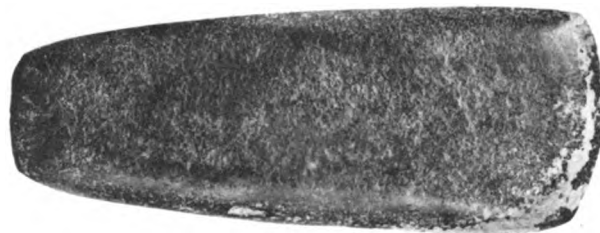
2



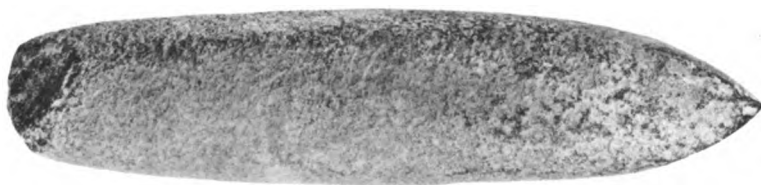
Axes from the Pan Shan graves. $\frac{1}{2}$.



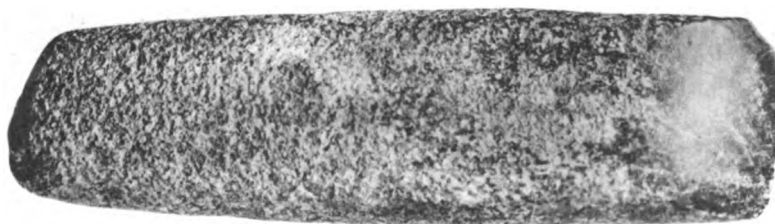
1



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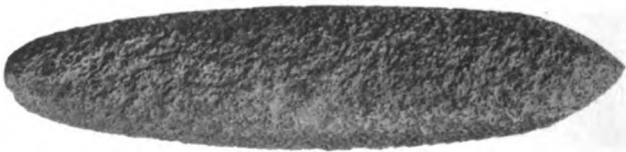
Axes from the Pan Shan graves. $\frac{1}{2}$.



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4

Axes from the Pan Shan graves. 1/2.



1

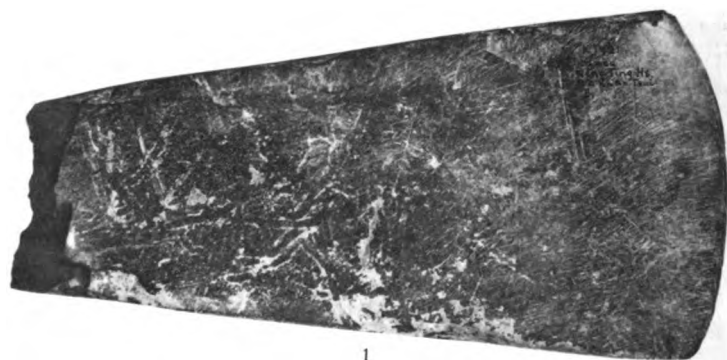


2



3

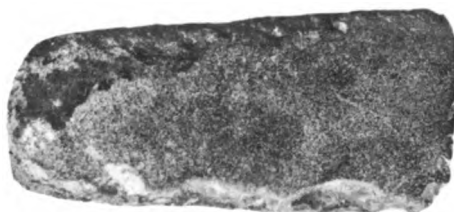
Axes from the Pan Shan graves. $\frac{1}{2}$.



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Adzes from the Pan Shan graves. $\frac{1}{2}$.



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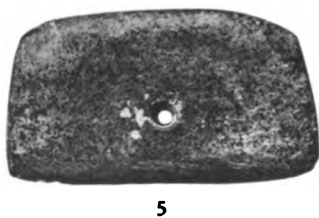
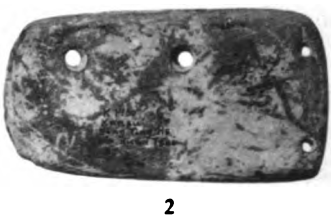
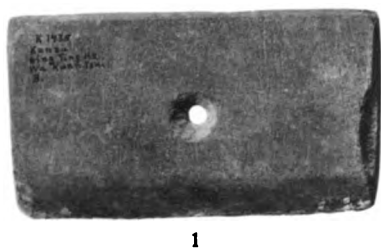
7



8



Pen etc. from the Pan Shan graves. 1/2.



Knives etc. from the Pan Shan graves. 1/2.



1



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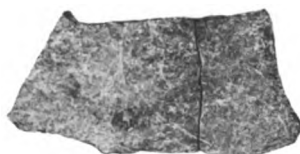
4



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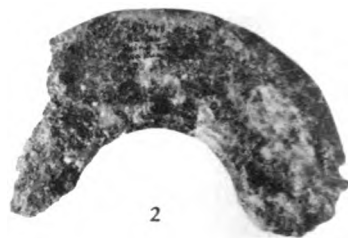


9

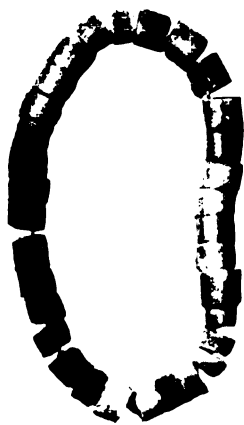
Jade objects from the Pan Shan graves, etc. 1/2.



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Objects from the Pan Shan graves. 1—2, 5—6= $\frac{1}{2}$, 3—4= $\frac{1}{1}$.



1



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3



4



5



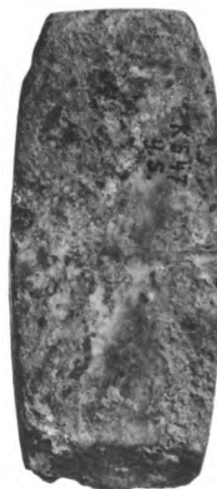
6



7

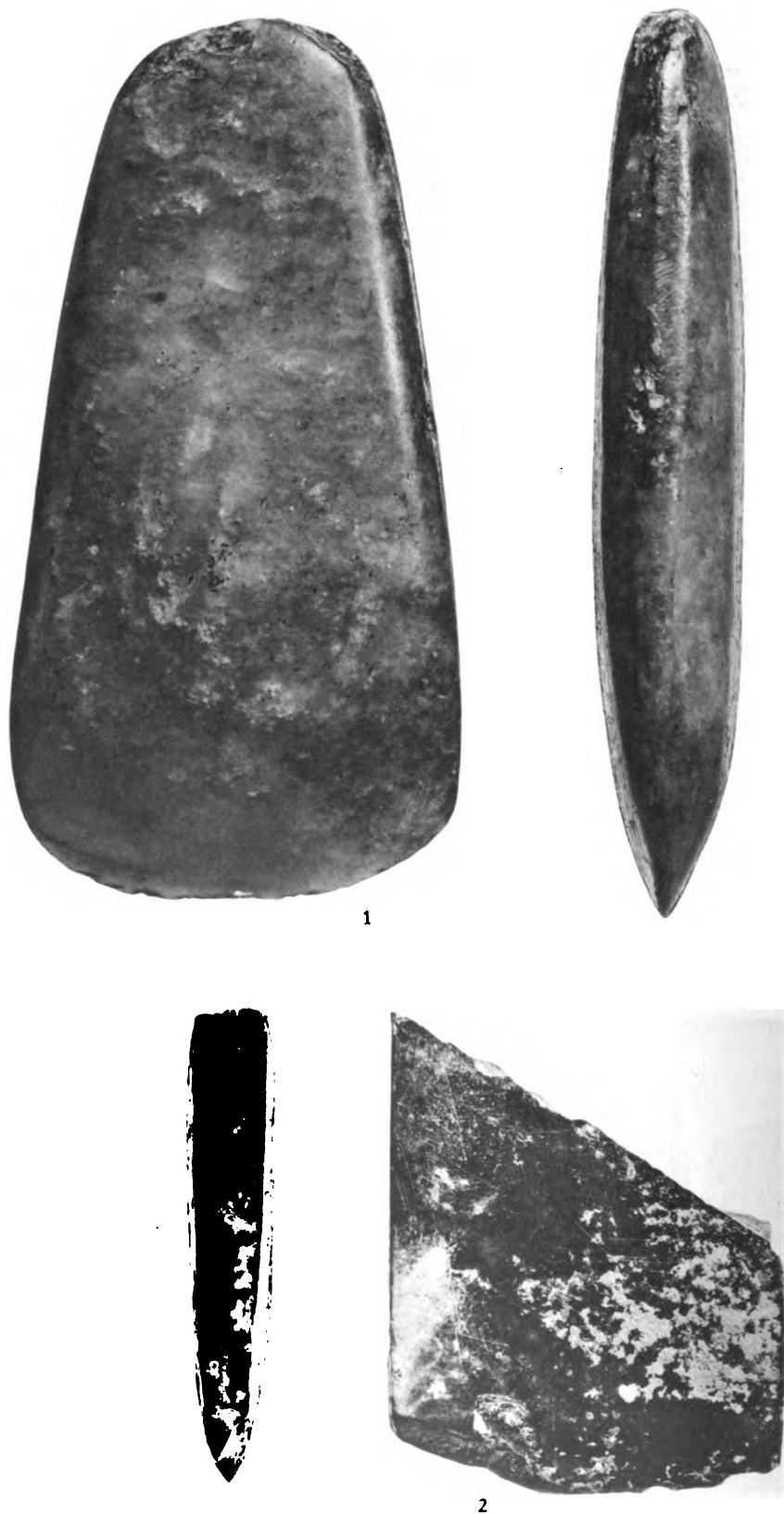


8



9

Prehistoric jade and chalcedony objects from Kansu and Honan. 1/1.



Prehistoric jade axes from Shansi and Honan. $\frac{1}{1}$.



1



2

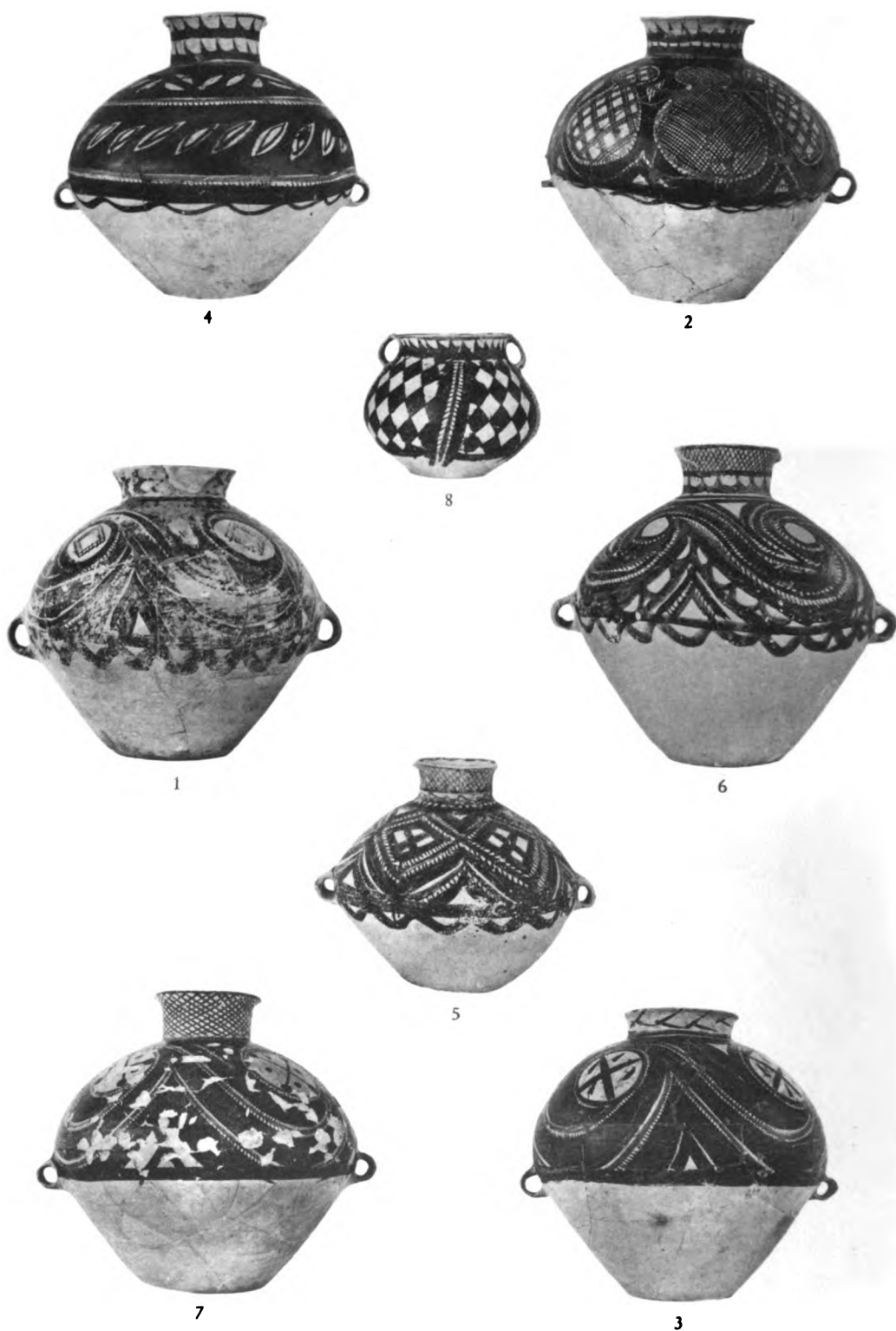


3



4

Stone objects of the Pien Chia Kou grave. $\frac{2}{3}$.



Urns of the Pien Chia Kou grave. 1/8.



1



2



3

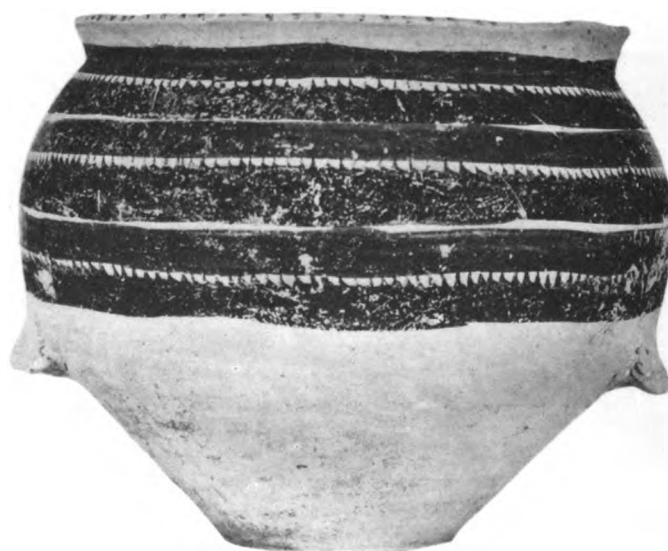


4

Urns of the Pien Chia Kou grave. 1—2= $\frac{1}{4}$. 3—4= $\frac{1}{2}$.



1



2

Urns of Pan Shan type. 1 = $\frac{1}{4}$, 2 = $\frac{1}{3}$.



1



2

Urns of Pan Shan type. 1 = $\frac{1}{4}$, 2 = $\frac{1}{3}$.



1



2

Urns of Pan Shan type. 1/4.



1



2

Urns of Pan Shan type. $\frac{1}{4}$.



1



2

Urns of Pan Shan type. 1/4.



1



2

Urns of Pan Shan type. $\frac{1}{5}$.



1



2

Urns of Pan Shan type. 1/4.



1



2

Urns of Pan Shan type. 1 = $\frac{1}{4}$, 2 = $\frac{1}{3}$.



1



2

Urns of Pan Shan type. 1/4.



1



2



3

Urns of Pan Shan type. $\frac{1}{3}$.



Urns of Pan Shan type. $\frac{1}{4}$.



1



2

Urns of Pan Shan type. $\frac{1}{4}$.



1



2

Urns of Pan Shan type. $\frac{1}{4}$.



1



2

Urns of Pan Shan type. $\frac{1}{4}$.



1

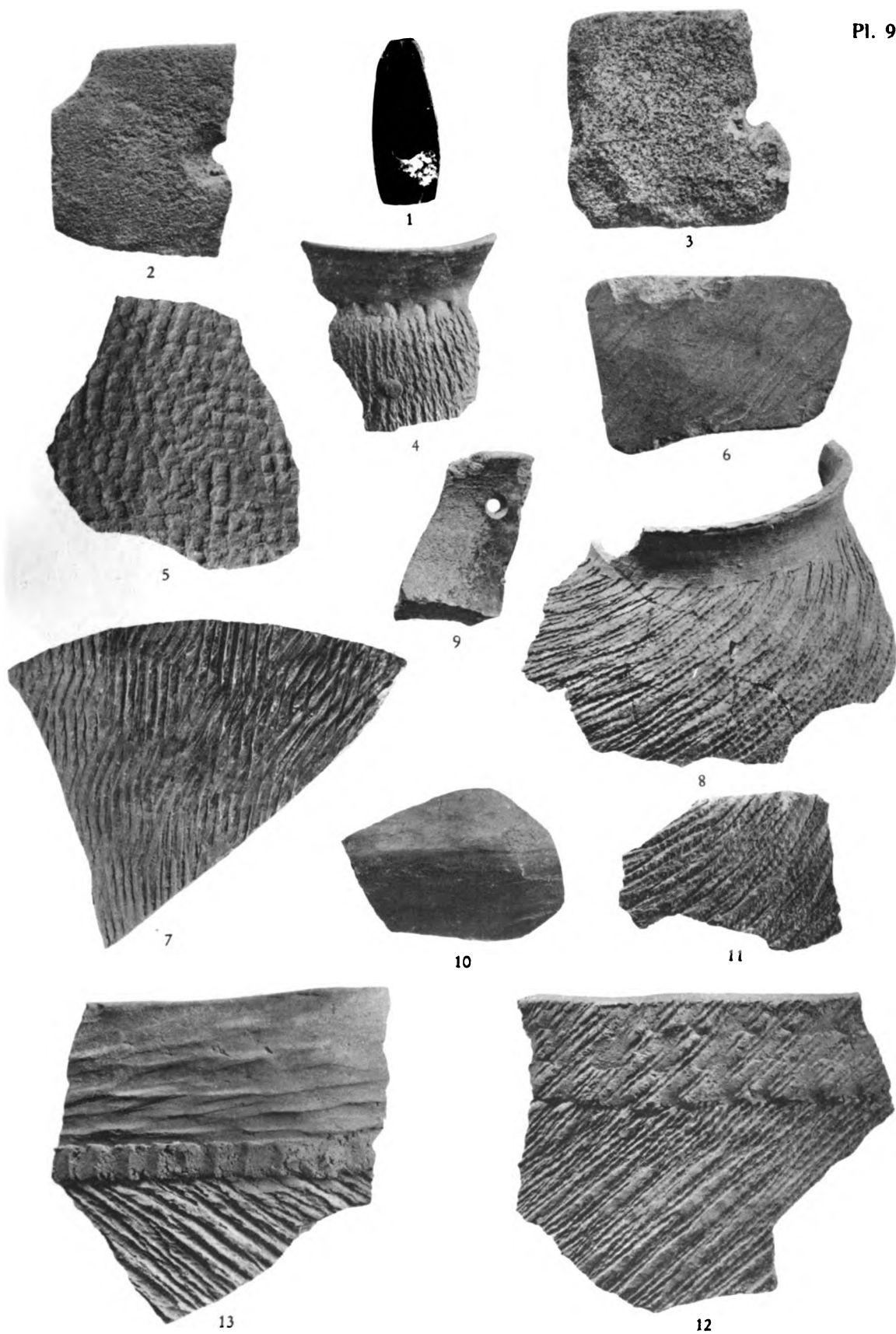


2



3

Urns of Pan Shan type. $\frac{1}{3}$.



Wu Lan Kou, Fu Ku Hsien. Shensi. 1—3. 9—10= $\frac{1}{1}$ the rest $\frac{2}{3}$.



1



2 a



2 b



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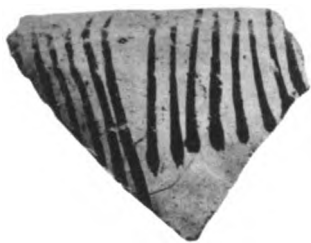


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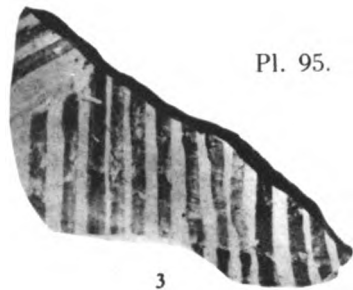
Wu Lan Kou, Fu Ku Hsien, Shensi. 2/3.



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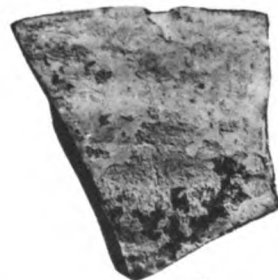
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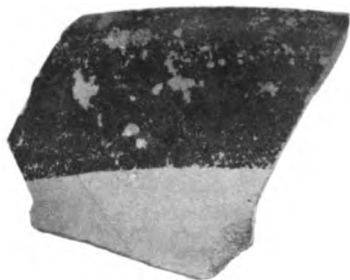


12

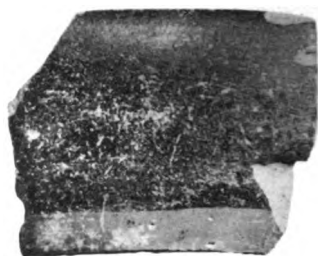


9

Wu Lan Kou, Fu Ku Hsien, Shensi. 1/1.



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4



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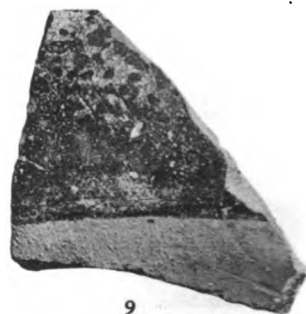
5



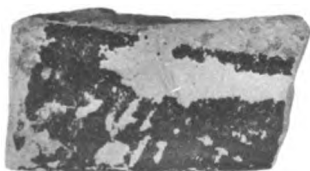
7



8



9

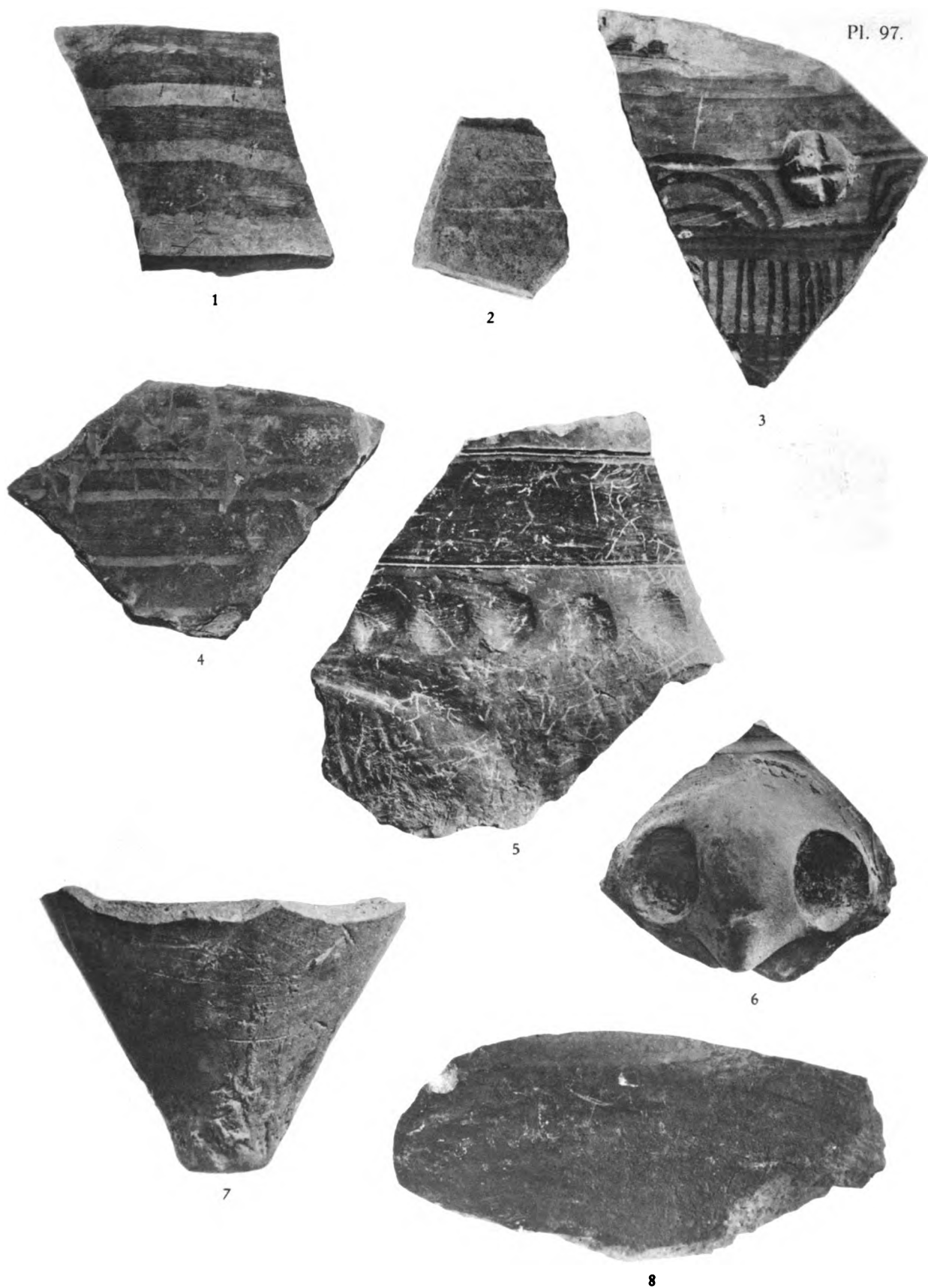


10

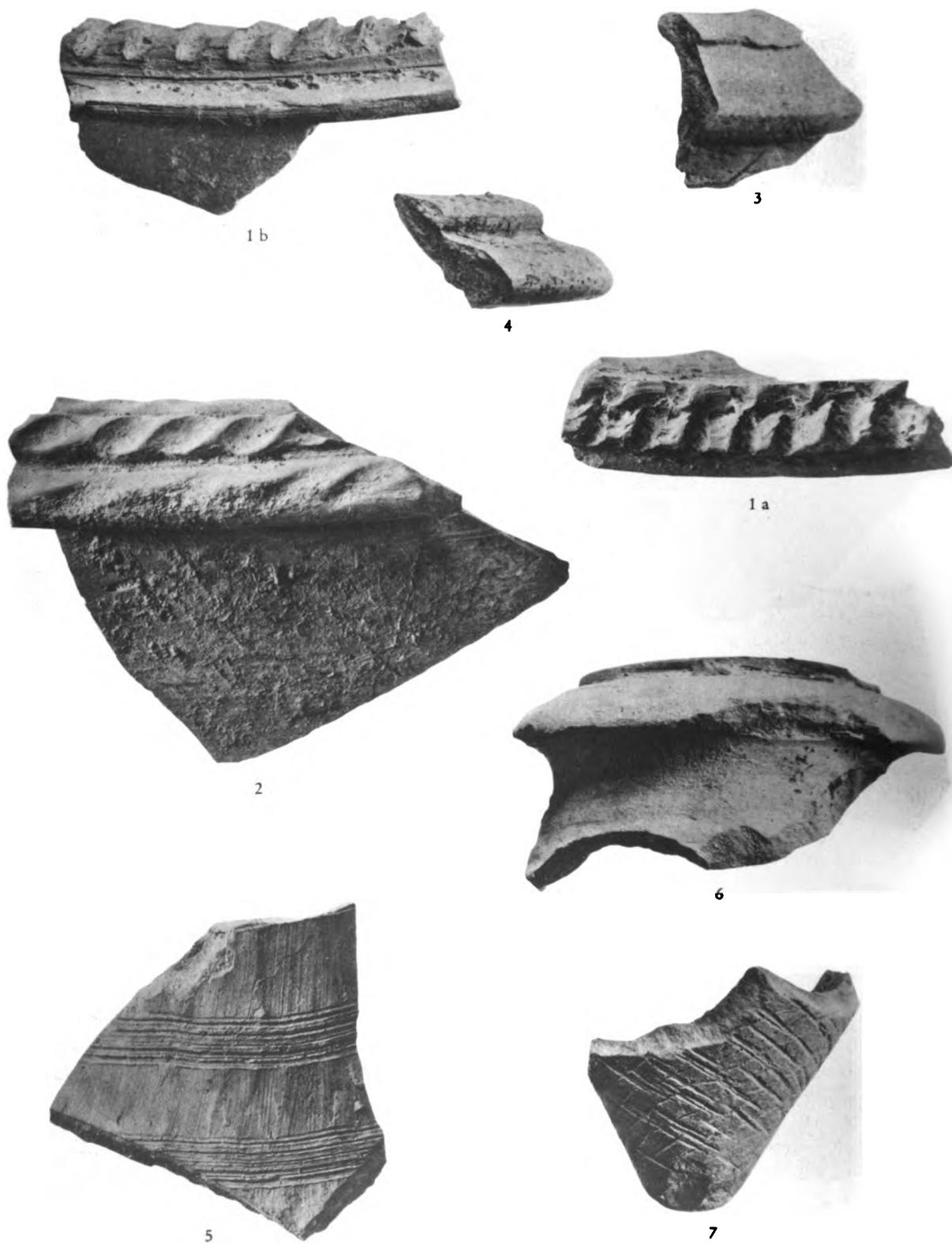


11

Nien Yen Tsun, Pao Te Hsien, Shansi. 1/1.



Tsao Chiao Tsun, Chao Hsien, Shansi. 1/1.



Tsao Chiao Tsun, Chao Hsien, Shansi. $\frac{1}{1}$.



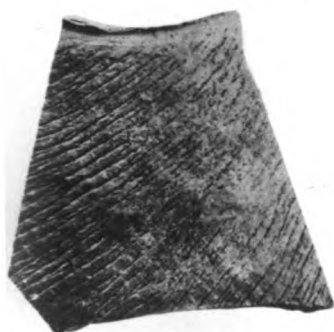
1



2



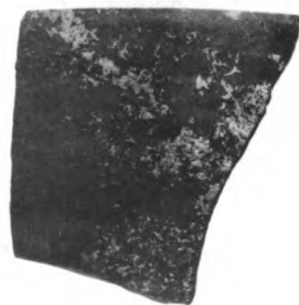
3



4



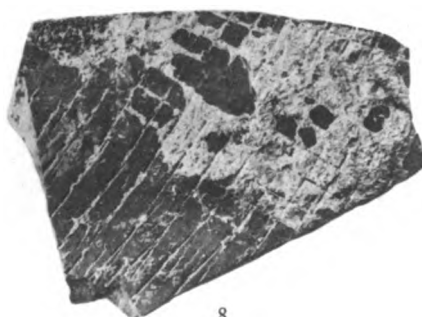
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Tsao Chiao Tsun, Chao Hsien, Shansi. 1½.



1 a



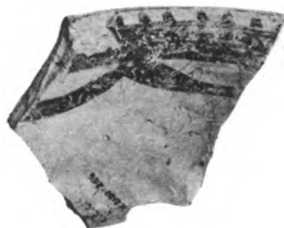
1 b



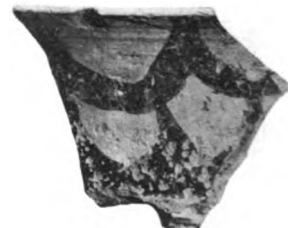
2



3



4 a



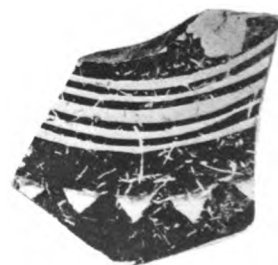
4 b



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Chu Chia Chai, Hsi Ning Hsien. Kansu. (Late Yang Shao) $\frac{1}{2}$.



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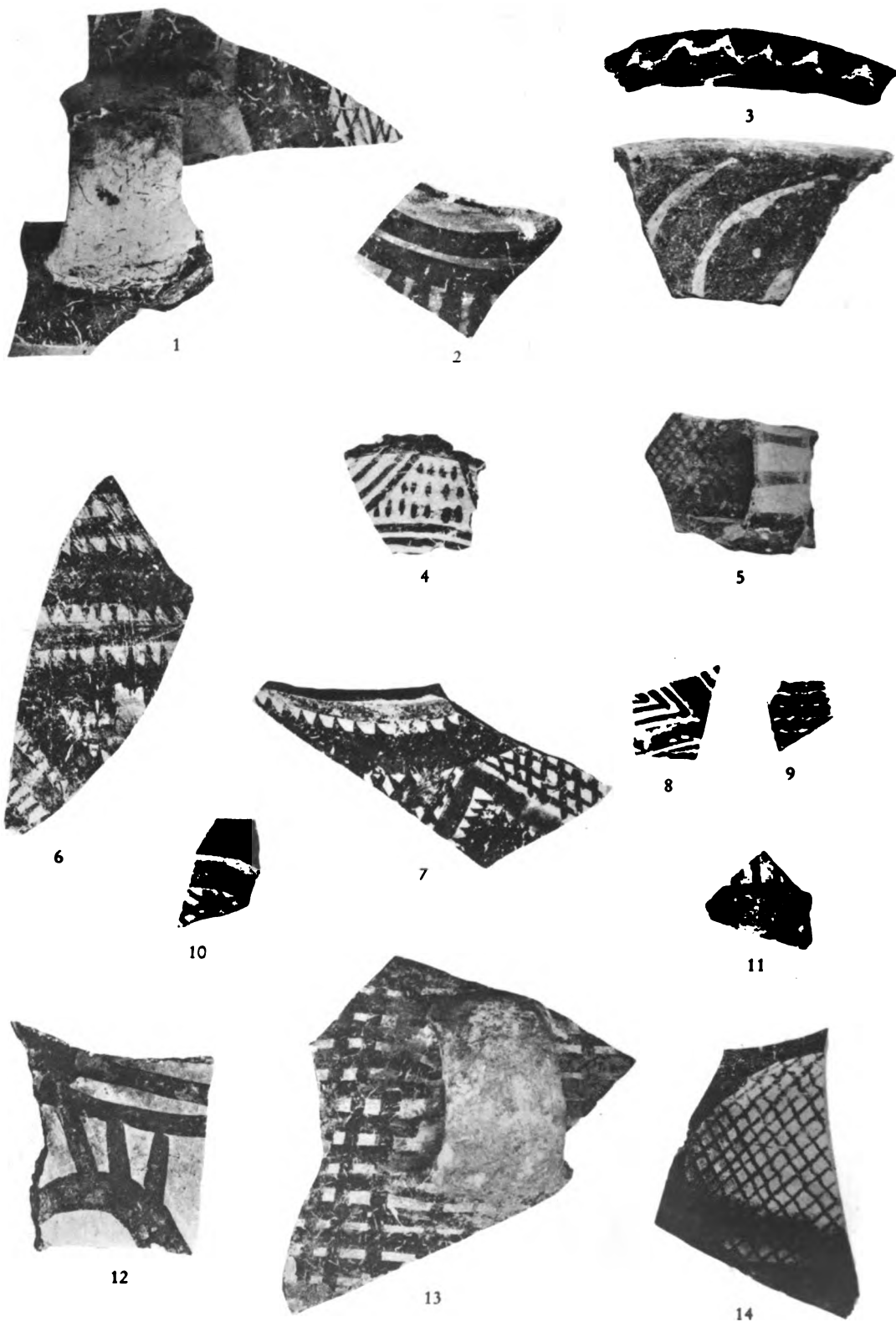


9



10

Chu Chia Chai, Hsi Ning Hsien. Kansu. (Late Yang Shao) $\frac{1}{2}$.



Chu Chia Chai, Hsi Ning Hsien, Kansu. (Late Yang Shao) $\frac{1}{2}$.



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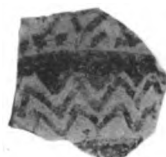
10



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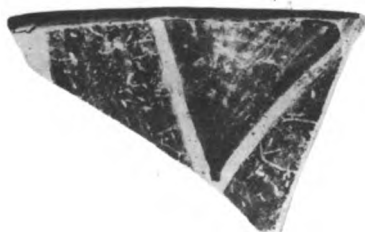
13



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21

Chu Chia Chai, Hsi Ning Hsien, Kansu. (Late Yang Shao) 1/2.



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3



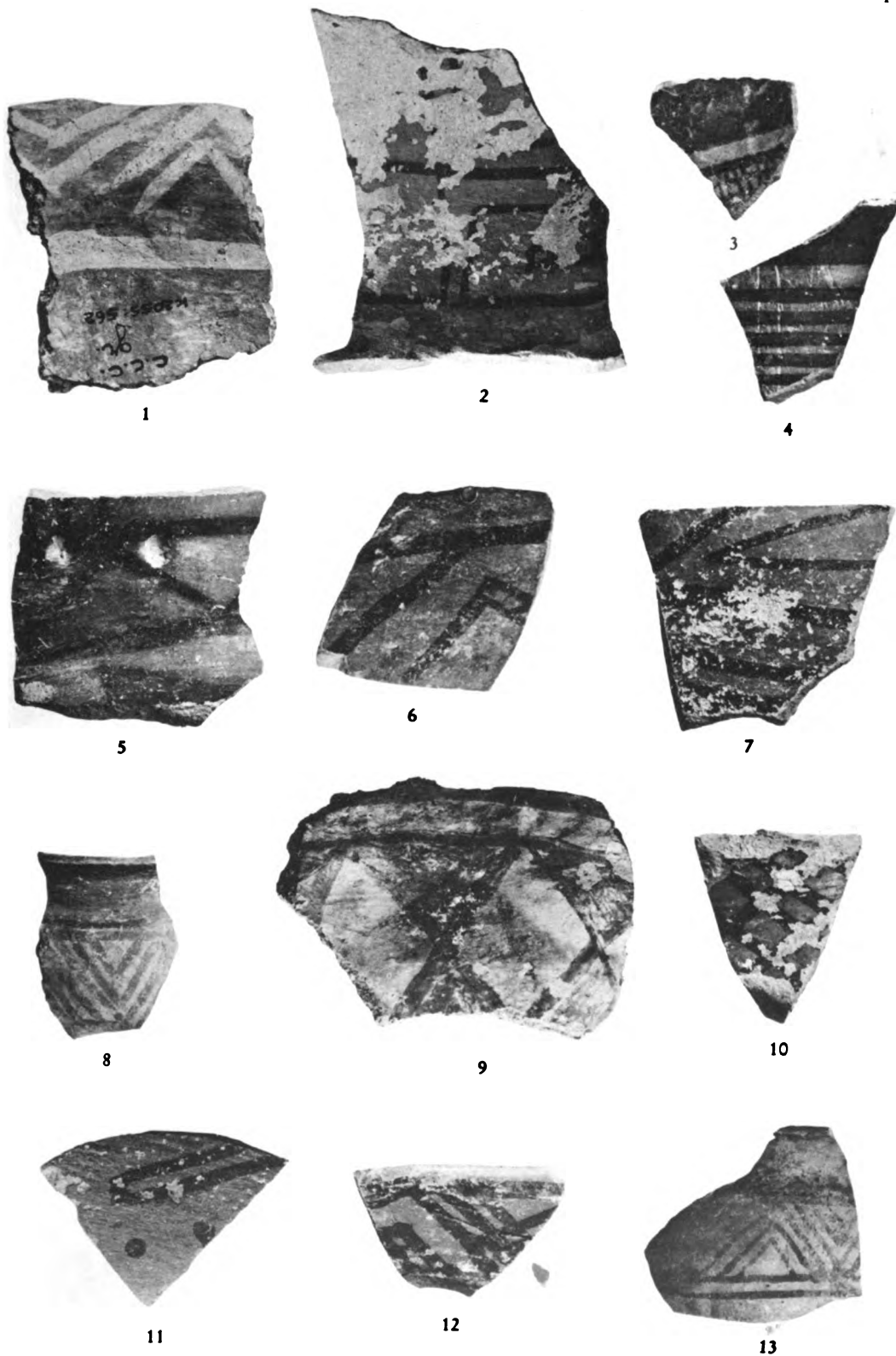
4



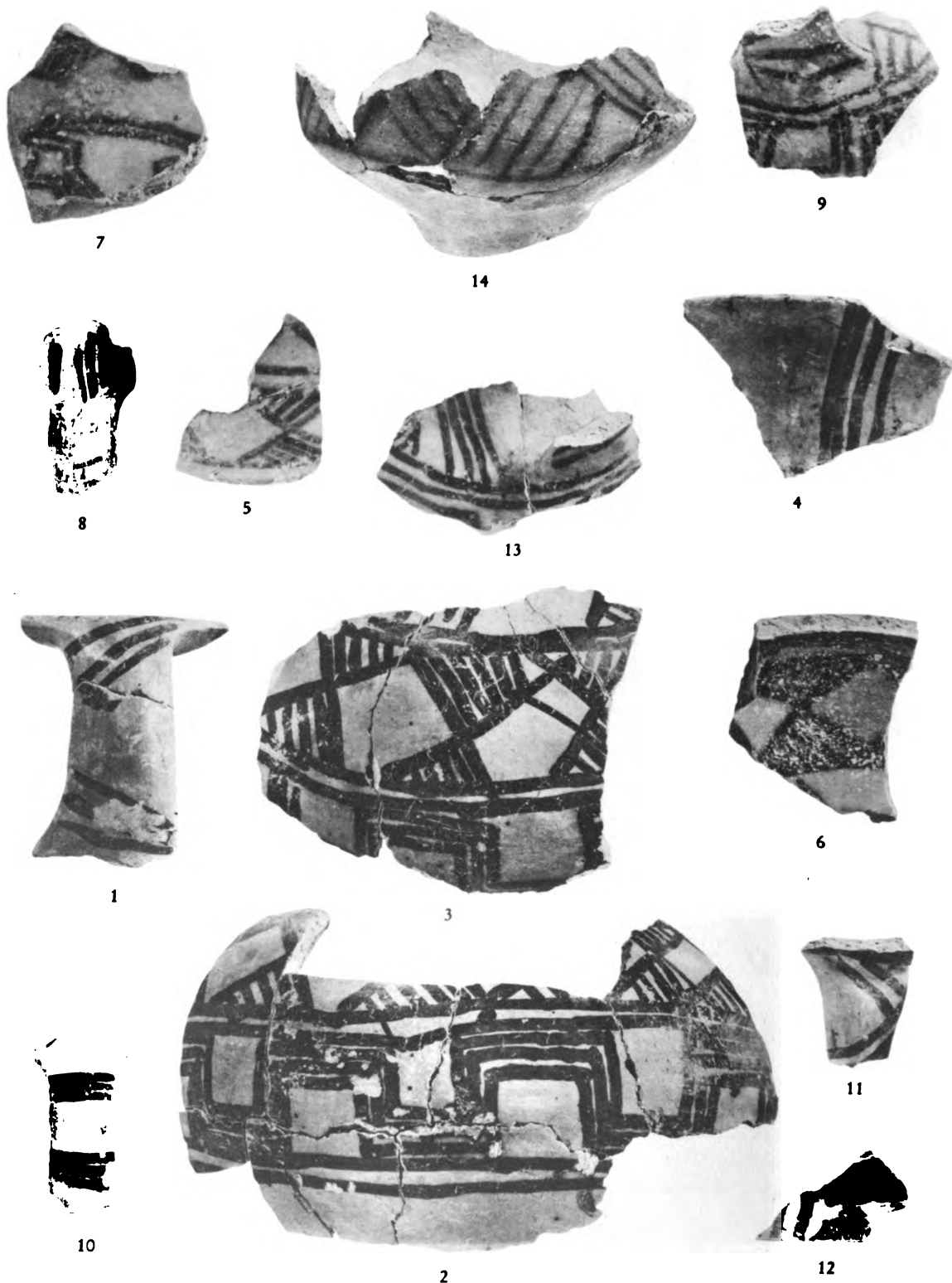
5



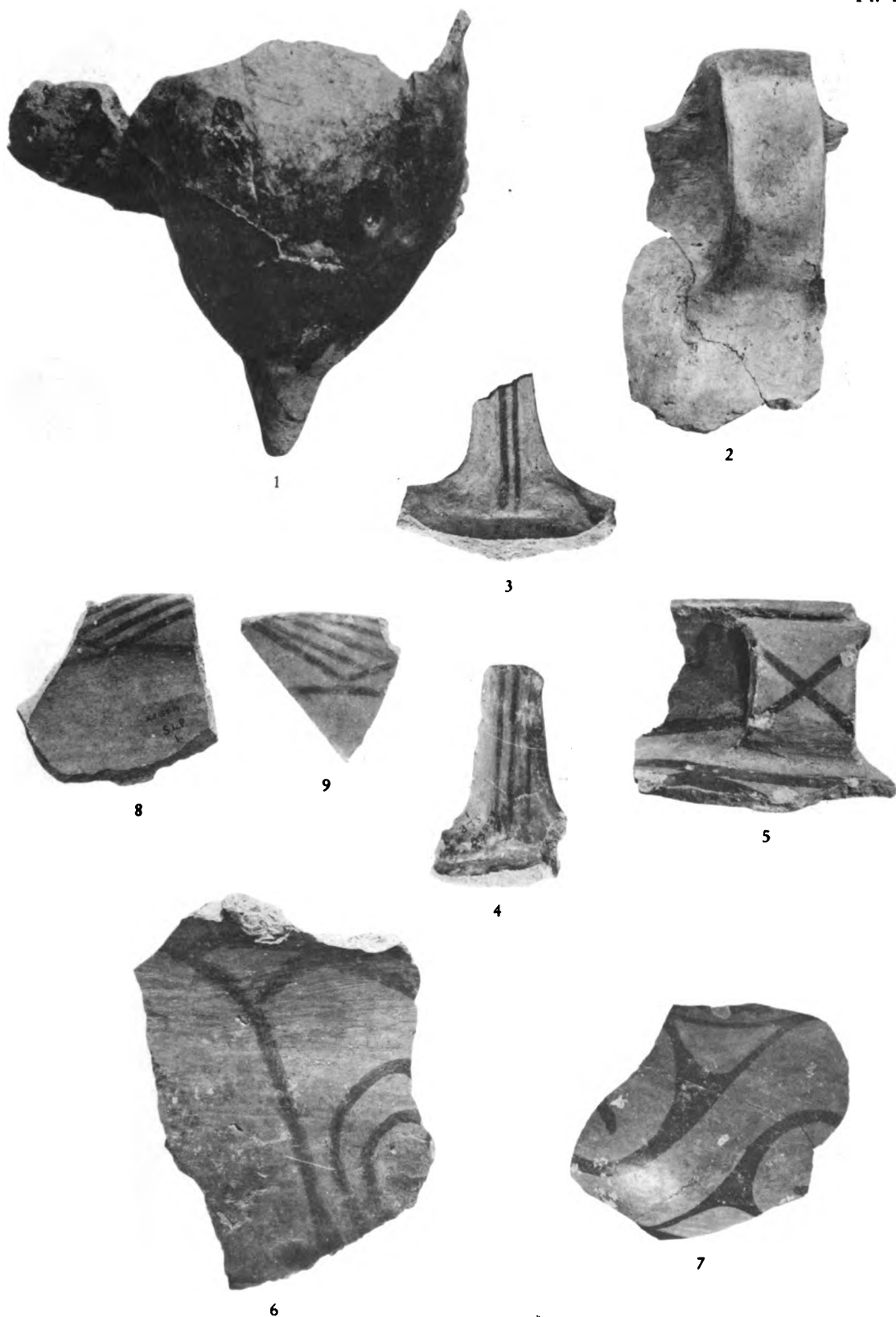
Chu Chia Chai, Hsi Ning Hsien, Kansu. (Late Yang Shao) 1/2.



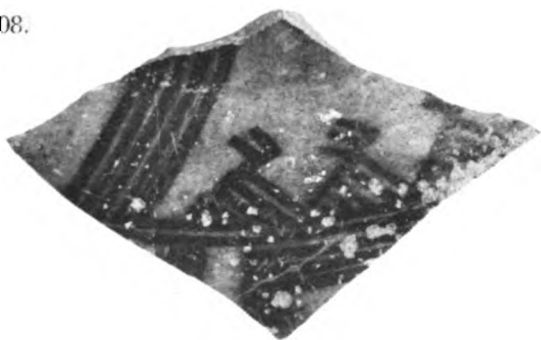
Chu Chia Chai, Hsi Ning Hsien, Kansu. (Late Yang Shao) 8, 9, 13 = $\frac{1}{2}$, the rest $\frac{1}{1}$.



Chu Chia Chai, Hsi Ning Hsien, Kansu. (Ma Chang age). 1/2.



Shih Li P'u. Hsi Ning Hsien. Kansu. (Ma Chang age). 1/2.



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Dwelling sites, Hsi Ning Hsien, Kansu. (Ma Chang age) $\frac{1}{2}$.



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Dwelling site urns, Ma Chang age. Kansu. $\frac{1}{3}$.



K 5303 1/4



K 5307 1/4



K 5755 1/4

Mortuary urns. Ma Chang age. Kansu.



K 5617 1/4



K 5291 1/4

Mortuary urns, Ma Chang age. Kansu.



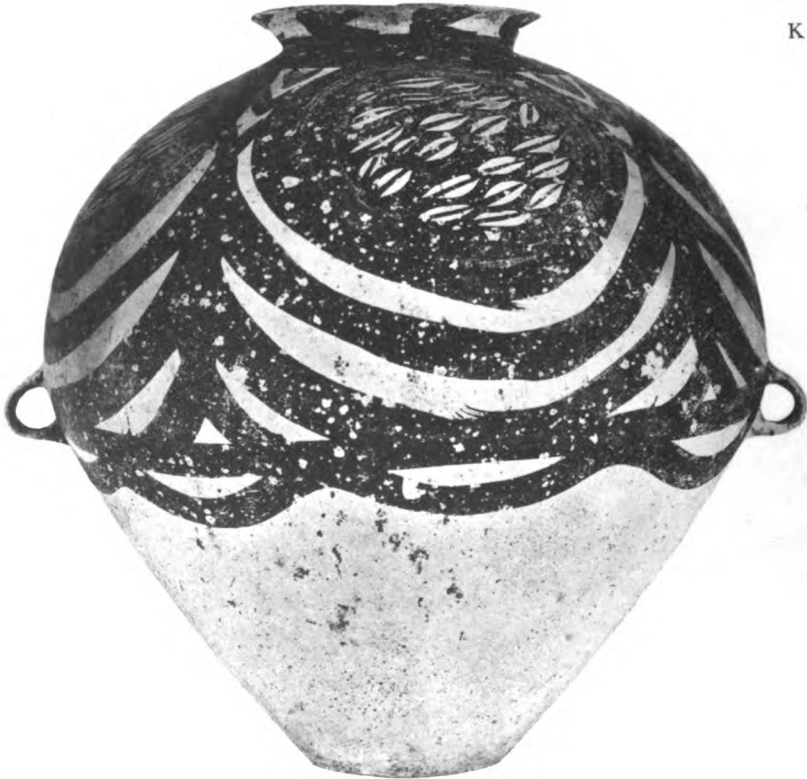
K 5302 1/4



K 5377 1/3



K 5360 1/2



K 5828 1/4

Mortuary urns. Ma Chang age. Kansu.



K 5316 $\frac{1}{3}$



K 5356 $\frac{1}{3}$



K 5352 $\frac{1}{3}$



K 5349 $\frac{1}{3}$



K 6124 $\frac{1}{2}$



K 5372 $\frac{1}{2}$

Mortuary urns. Ma Chang age. Kansu.



K 5262 1/4



K 5339 1/8



K 5297 1/4



K 5490 1/8



K 5326 1/8



K 5317 1/8

Mortuary urns, Ma Chang age. Kansu.



K 5357 1/3



K 5351 1/3



K 5335 1/3



K 5989 1/3



K 5321 1/3



K 5367 1/3

Mortuary urns, Ma Chang age. Kansu.



K 5331 $\frac{1}{3}$



K 5343 $\frac{1}{3}$



K 5369 $\frac{1}{3}$



K 5693 $\frac{1}{2}$



K 5342 $\frac{1}{3}$



K 5359 $\frac{1}{2}$

Mortuary urns. Ma Chang age. Kansu.



K 5231 $\frac{1}{3}$



K 5776 $\frac{1}{2}$



K 5336 $\frac{1}{3}$



K 5290 $\frac{1}{4}$



K 5230 $\frac{1}{3}$

Mortuary urns. Ma Chang age. Kansu.



1



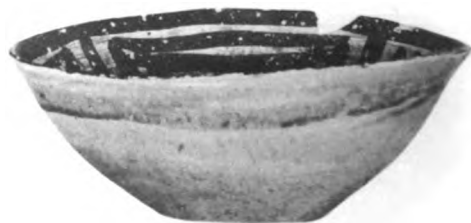
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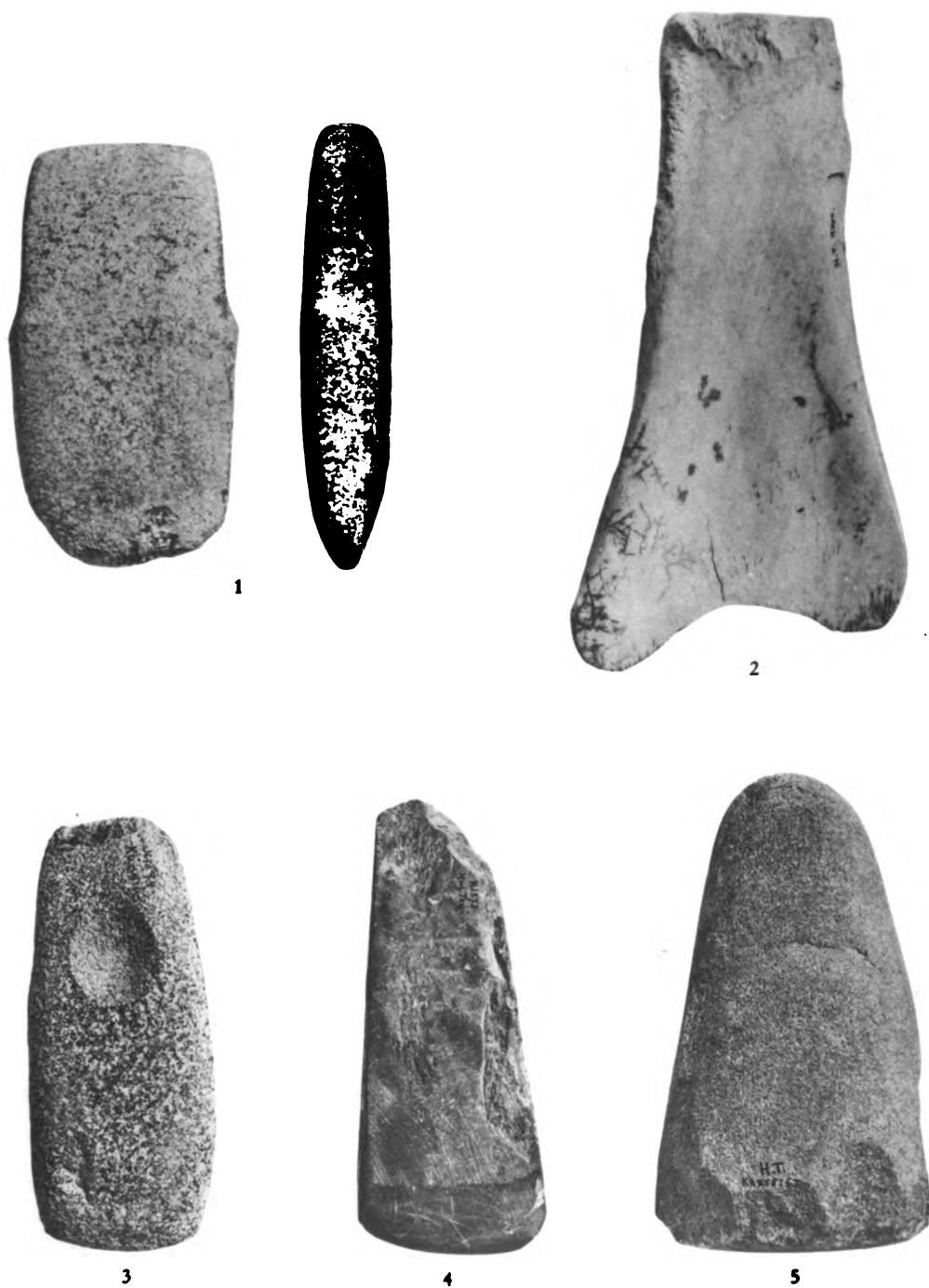
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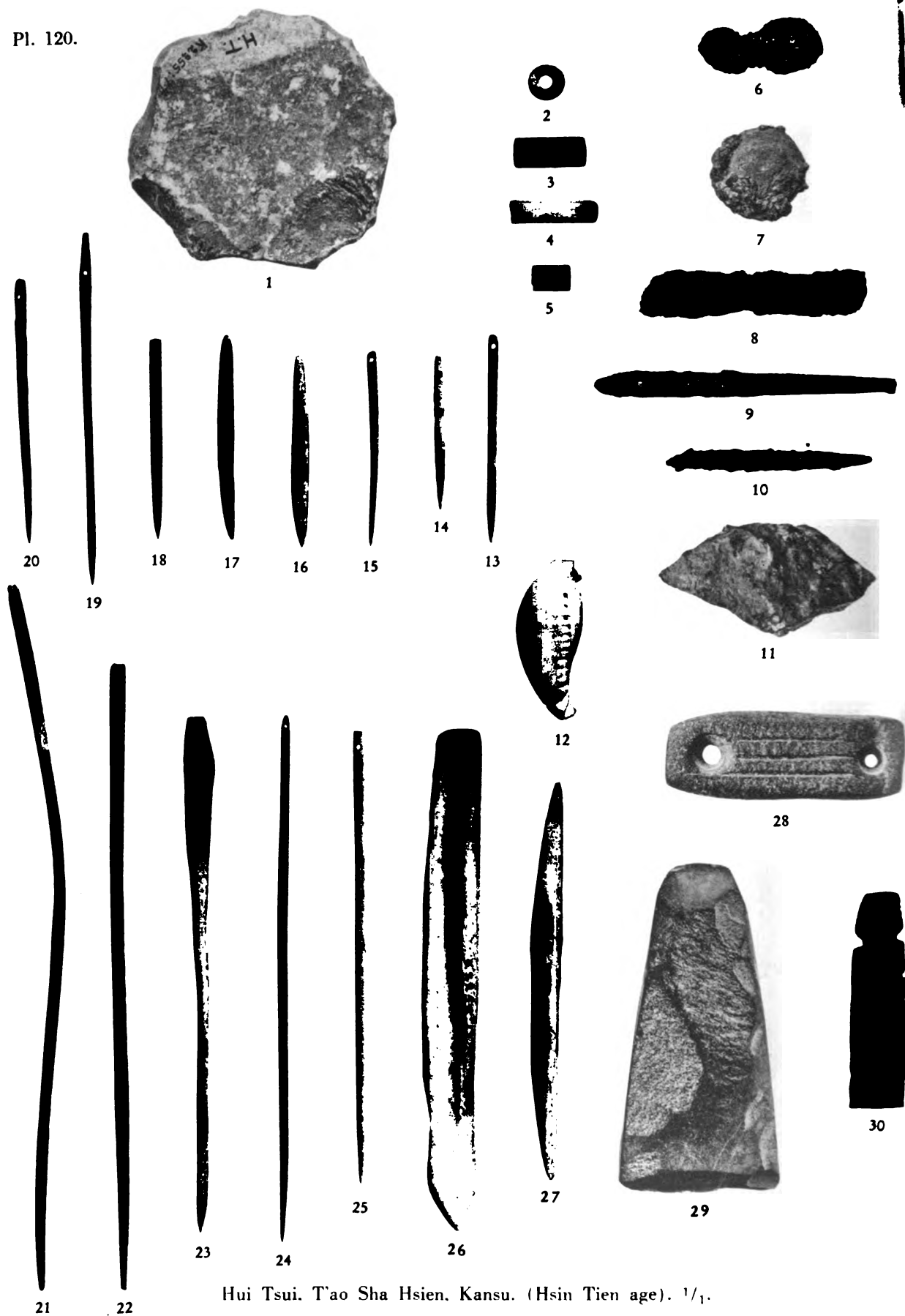
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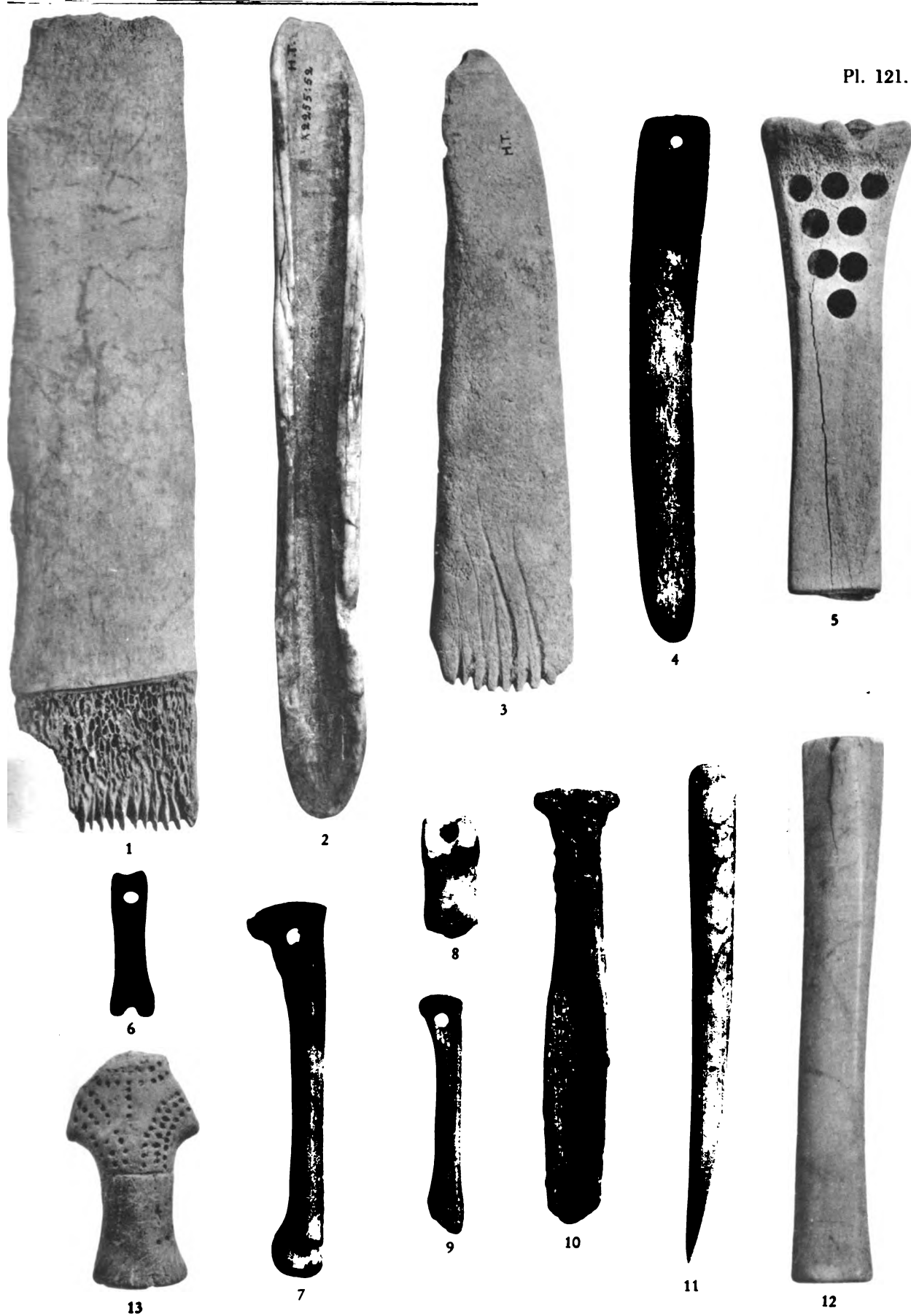
Vessels of Ma Chang age. Kansu. 1.3 = $\frac{1}{2}$, the rest $\frac{1}{3}$.



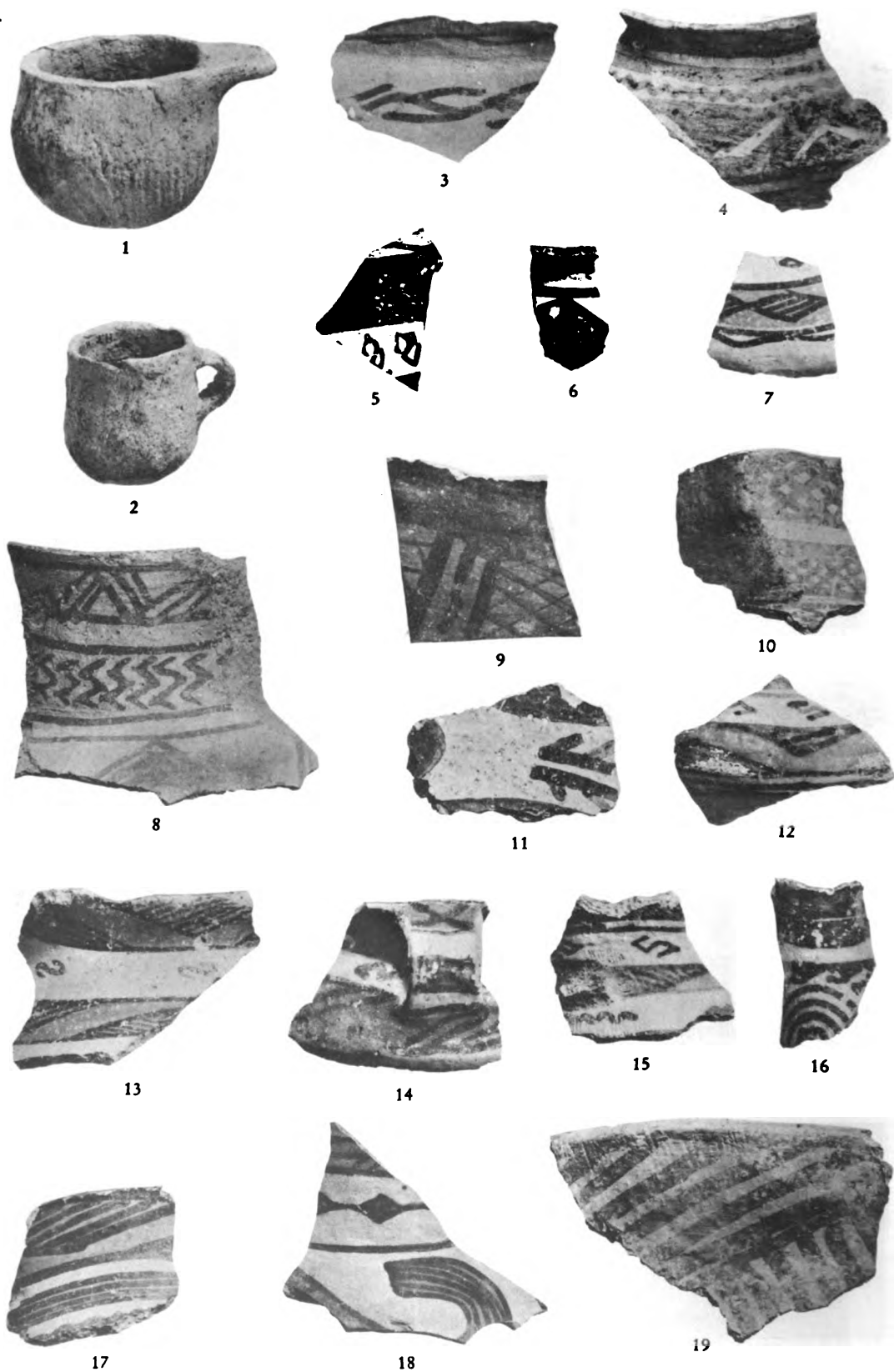
Hui Tsui, T'ao Sha Hsien, Kansu. (Hsin Tien age). $\frac{1}{2}$.



Hui Tsui, T'ao Sha Hsien, Kansu. (Hsin Tien age). 1/1.



Hui Tsui, T'ao Sha Hsien, Kansu. (Hsin Tien age). $\frac{1}{1}$.



Hui Tsui, T'ao Sha Hsien, Kansu. (Hsin Tien age). 1/2



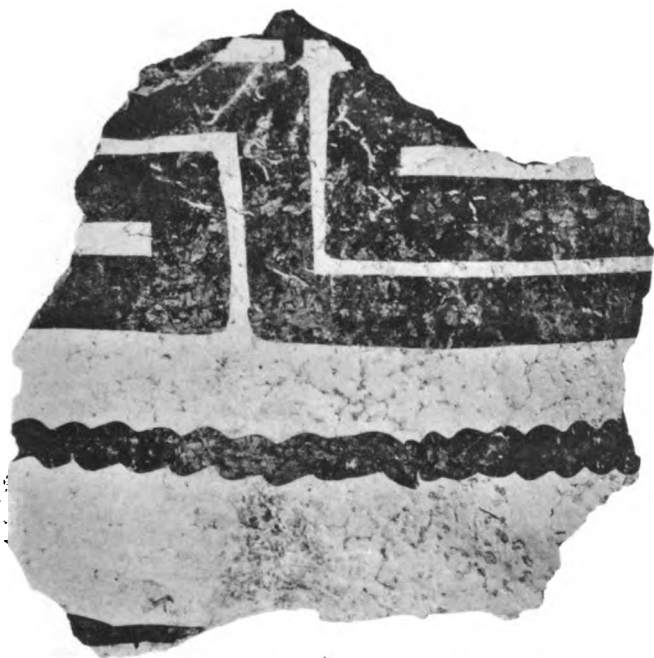
1



2



3



4



5



6



7



8



9

Hui Tsui, T'ao Sha Hsien, Kansu. (Hsin Tien age). 1/2.



1



2



3



4



5



6



9



8.

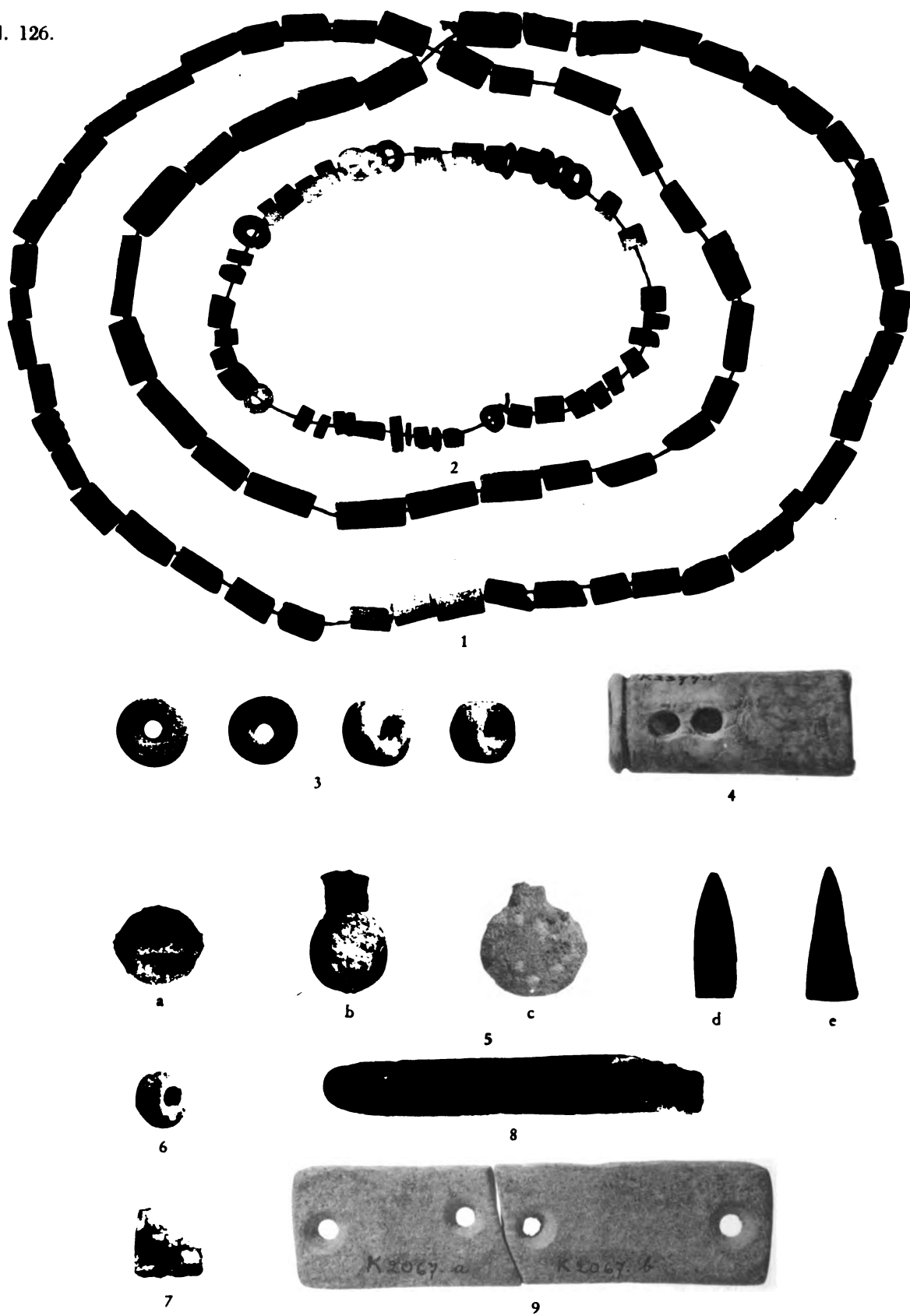


7

Hui Tsui, T'ao Sha Hsien, Kansu. (Hsin Tien age). 15.



Hsin Tien E, T'ao Sha Hsien, Kansu. (Hsin Tien age). $\frac{1}{2}$.



5—8 Hsin Tien A. 9 Ssu Shih Ting. $\frac{1}{1}$.



K 5416 H



K 5819 H

Mortuary vessels of Hsin Tien age. $\frac{1}{4}$.



K 5822 H



K 5410 B

Mortuary vessels of Hsin Tien age. $\frac{1}{4}$.



K 5403 H



K 5407 H

Mortuary vessels of Hsin Tien age. $\frac{1}{4}$.



K 5814 H



K 5420 H

Mortuary vessels of Hsin Tien age. $\frac{1}{4}$.



K 5408 B



K 5782 S

Mortuary vessels of Hsin Tien age. $\frac{1}{4}$.



K 5718 S $\frac{1}{3}$



K 5648 B $\frac{1}{2}$



K 5535 H $\frac{1}{3}$



K 5663 B $\frac{1}{3}$



K 5741 H $\frac{1}{2}$



K 5631 H $\frac{1}{3}$



K 5765 H $\frac{1}{2}$



K 5745 H $\frac{1}{2}$

Mortuary vessels of Hsin Tien age.



K 5764 H



K 5760 H



K 5630 H



K 5769 H



K 5632 H

Mortuary vessels of Hsin Tien age. 1/2.



K 5735 S



K 5733 S



K 5391 B



K 5647 H

Mortuary vessels of Hsin Tien age. $\frac{1}{3}$.



K 5540 B $\frac{1}{3}$



K 5650 S $\frac{1}{2}$



K 5668 S $\frac{1}{2}$

Mortuary vessels of Hsin Tien age.



K 5715 B



K 5538 H



K 5402 B

Mortuary vessels of Hsin Tien age. $\frac{1}{3}$.



K 5513 B $\frac{1}{3}$



K 5273 H $\frac{1}{2}$



K 5762 H $\frac{1}{2}$

Mortuary vessels of Hsin Tien age.



K 5554 S $\frac{1}{2}$



K 5543 S $\frac{1}{2}$

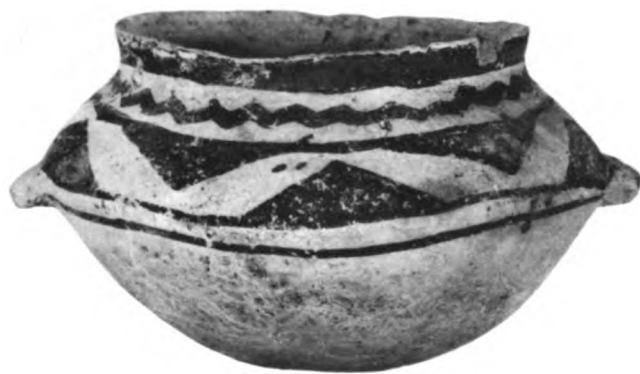


K 5665 S $\frac{1}{3}$



K 5651 S $\frac{1}{2}$

Mortuary vessels of Hsin Tien age.



K 5547 H



K 5532 H



K 5541 H

Mortuary vessels of Hsin Tien age. $\frac{1}{2}$.



K 5544 1/3



K 5400 S 1/3



K 5907 1/2



K 5507 H 1/3



K 5739 S 1/3



K 5661 S 1/3



K 5734 S 1/3

Mortuary vessels of Hsin Tien age.

Skel. 1



K 5685

Skel. 2



K 5569



K 5684



K 5558



K 5571



K 5687

Ssu Wa Shan, Ti Tao Hsien.

Skel. 3



K 5679



K 5681

Skel. 4



K 5680



K 5682



K 5683

Skel. 5



K 5688



K 5677



K 5773

Ssu Wa Shan, Ti Tao Hsien.

Skel. 6



K 5567



K 5568



K 5778



K 5585

Skel. 7



K 5565



K 5774



K 5570



K 5566

Skel. 8



K 5564

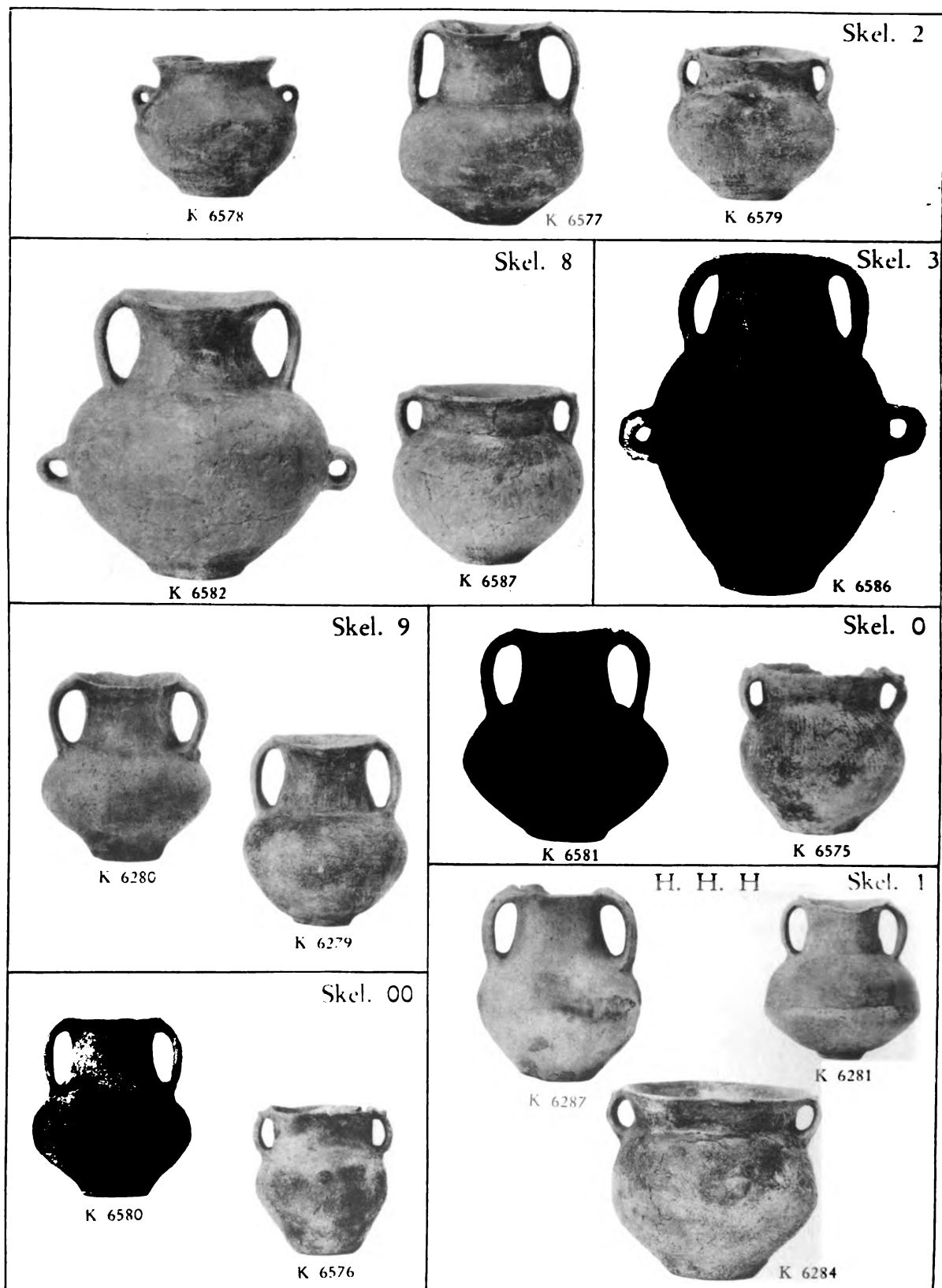


K 6137

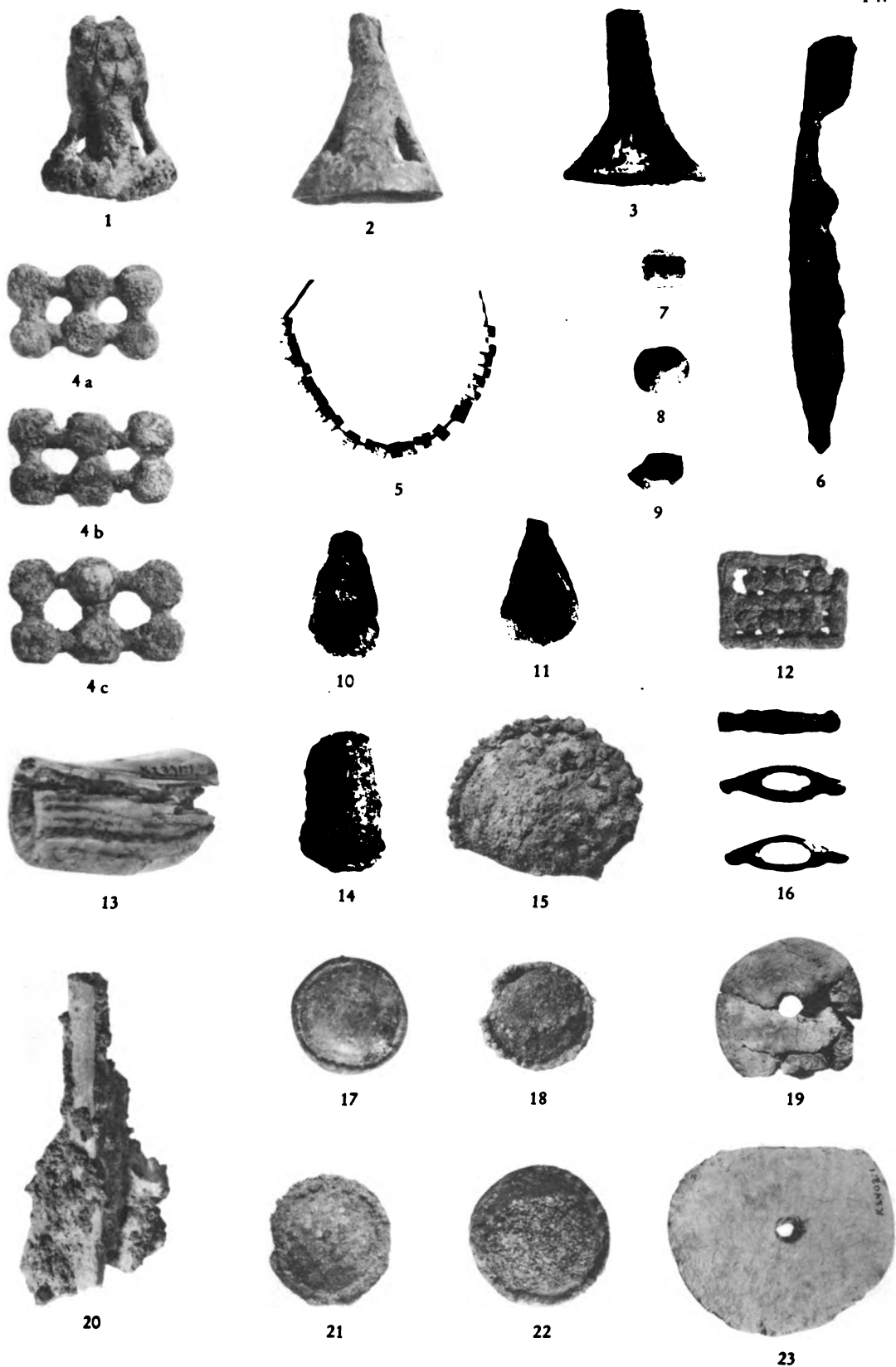


K 5586

Ssu Wa Shan, Ti Tao Hsien.



Ch'ia Yao and Hsia Hsi Ho, Hsi Ning Hsien, Kansu.



Ch'ia Yao and Hsia Hsi Ho, Hsi Ning Hsien, Kansu. 19, 23 = $\frac{1}{2}$, the rest = $\frac{1}{1}$.



Ch'ia Yao and Hsia Hsi Ho, Hsi Ning Hsien, Kansu. 10, 11, 17, 18 = $\frac{1}{2}$ the rest = $\frac{1}{1}$.



1



2



3



4

Sha Ching. S. grave-field. Registered graves. 1/2.



1



2

Sha Ching. S. grave-field. Registered graves. 1/2.



1



2

Sha Ching. S. grave-field. Burial urns. 1 = $\frac{1}{2}$ 2 = $\frac{1}{3}$.



1



2

Sha Ching. Burial urns. $\frac{1}{3}$.



1



2

Sha Ching. S. grave-field. Burial urns. $\frac{1}{3}$.



1



2

Sha Ching. S. grave-field. Burial urns. 1/2.



1



2



3

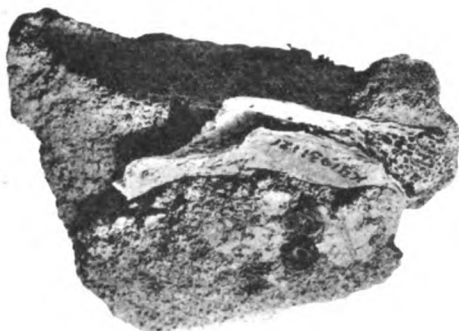
Sha Ching. Pottery. 1/2.



1



2



3



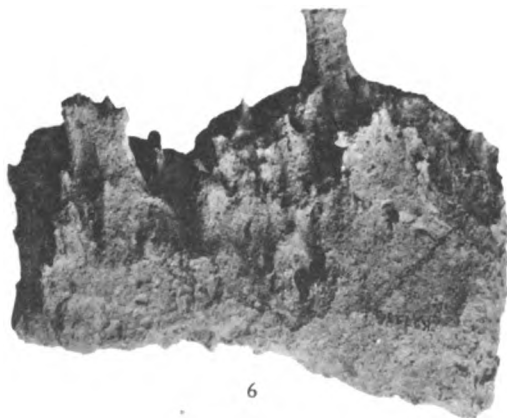
5



4

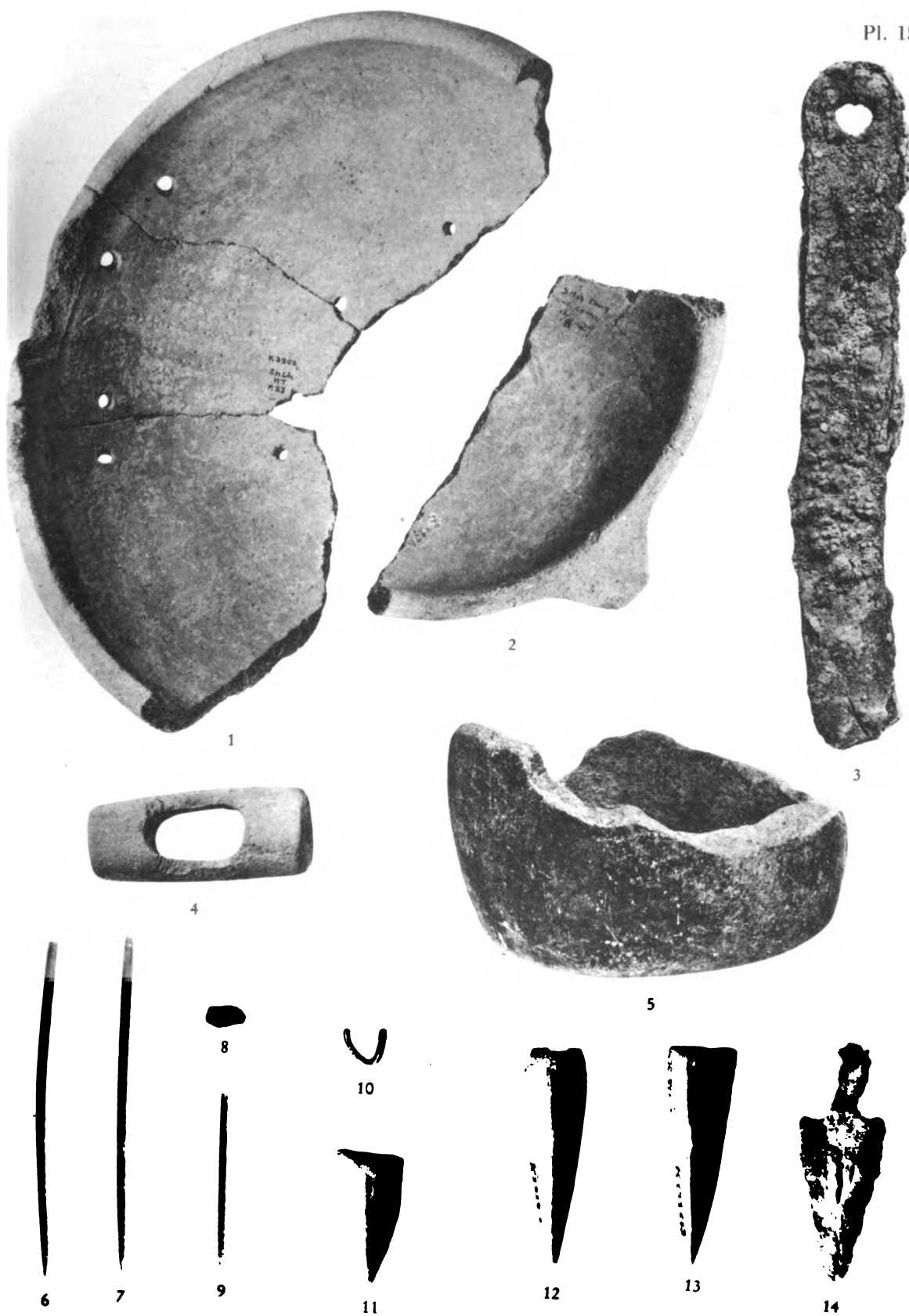


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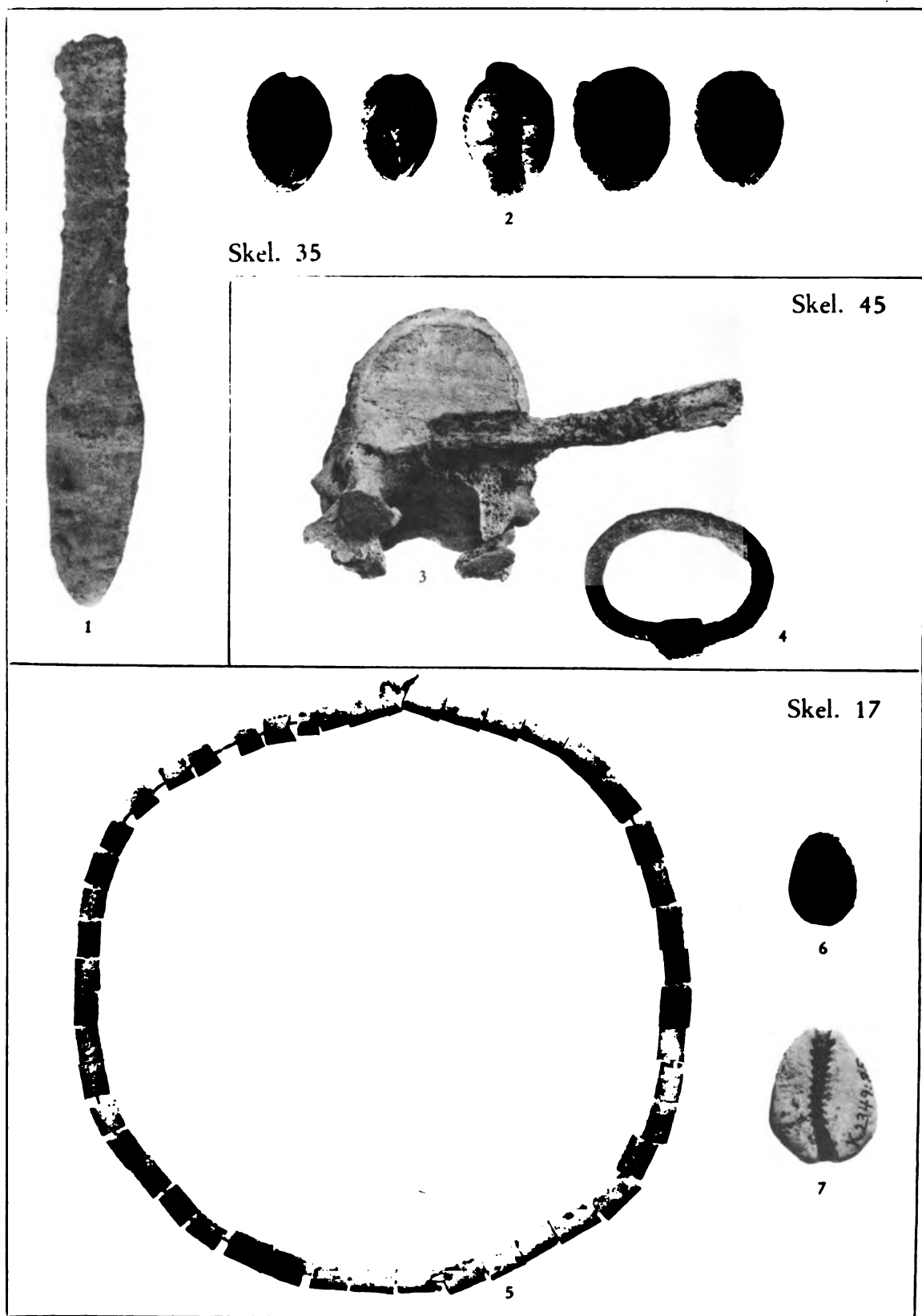


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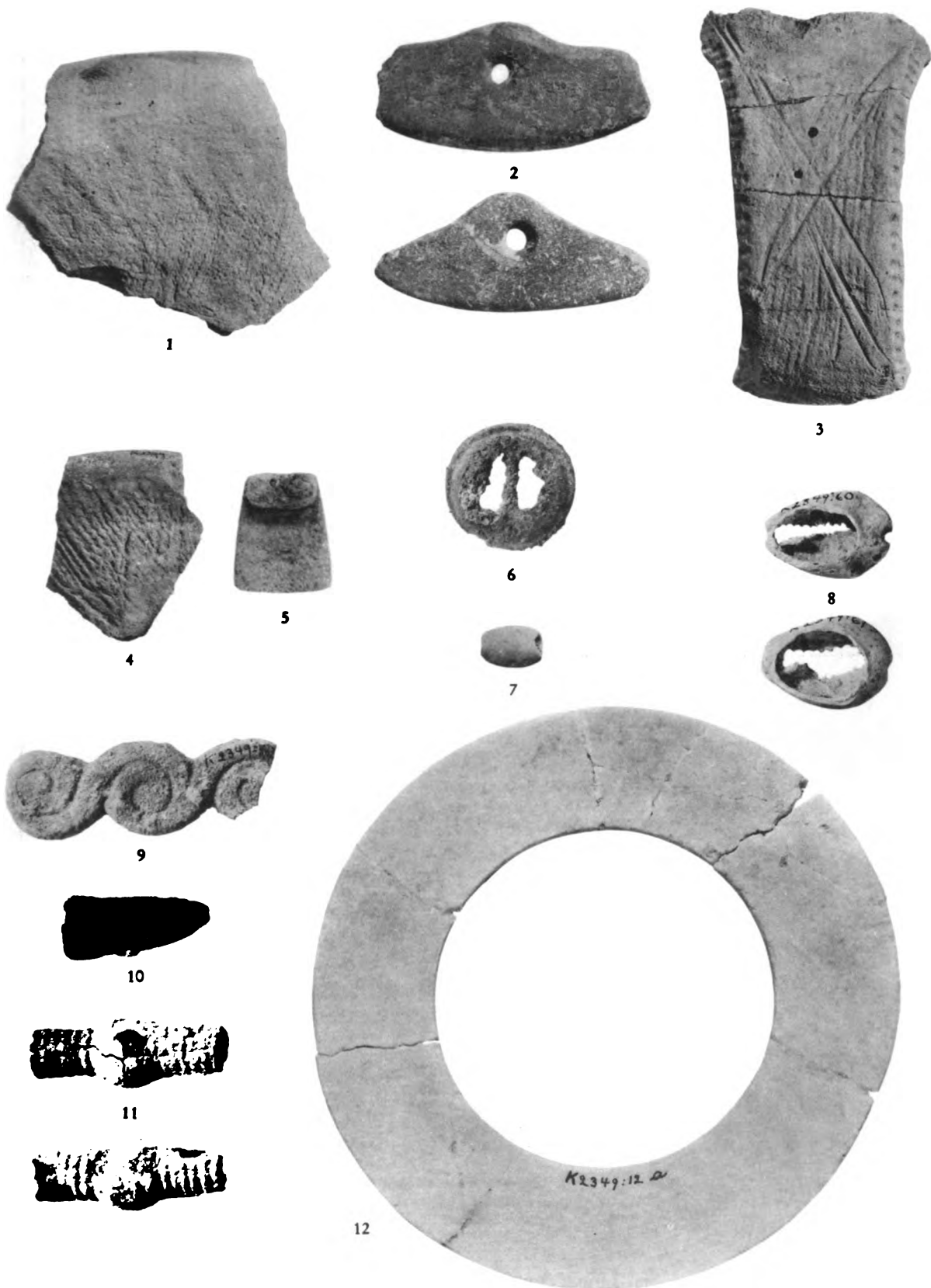
Sha Ching. S. Erosion phenomena. 1—3 = $\frac{1}{1}$, 4—7 = $\frac{1}{2}$.



Sha Ching. S. Liu Hu T'un fort. 1. 2. 5 = $\frac{1}{2}$ the rest $\frac{1}{4}$.



Sha Ching. S. grave-field. Registered graves. 1/1.



Sha Ching. S. grave-field. Registered graves. 1 — 4 = $\frac{1}{2}$ the rest $\frac{1}{1}$.



1



2



3



4



5



6



7



8



9



10

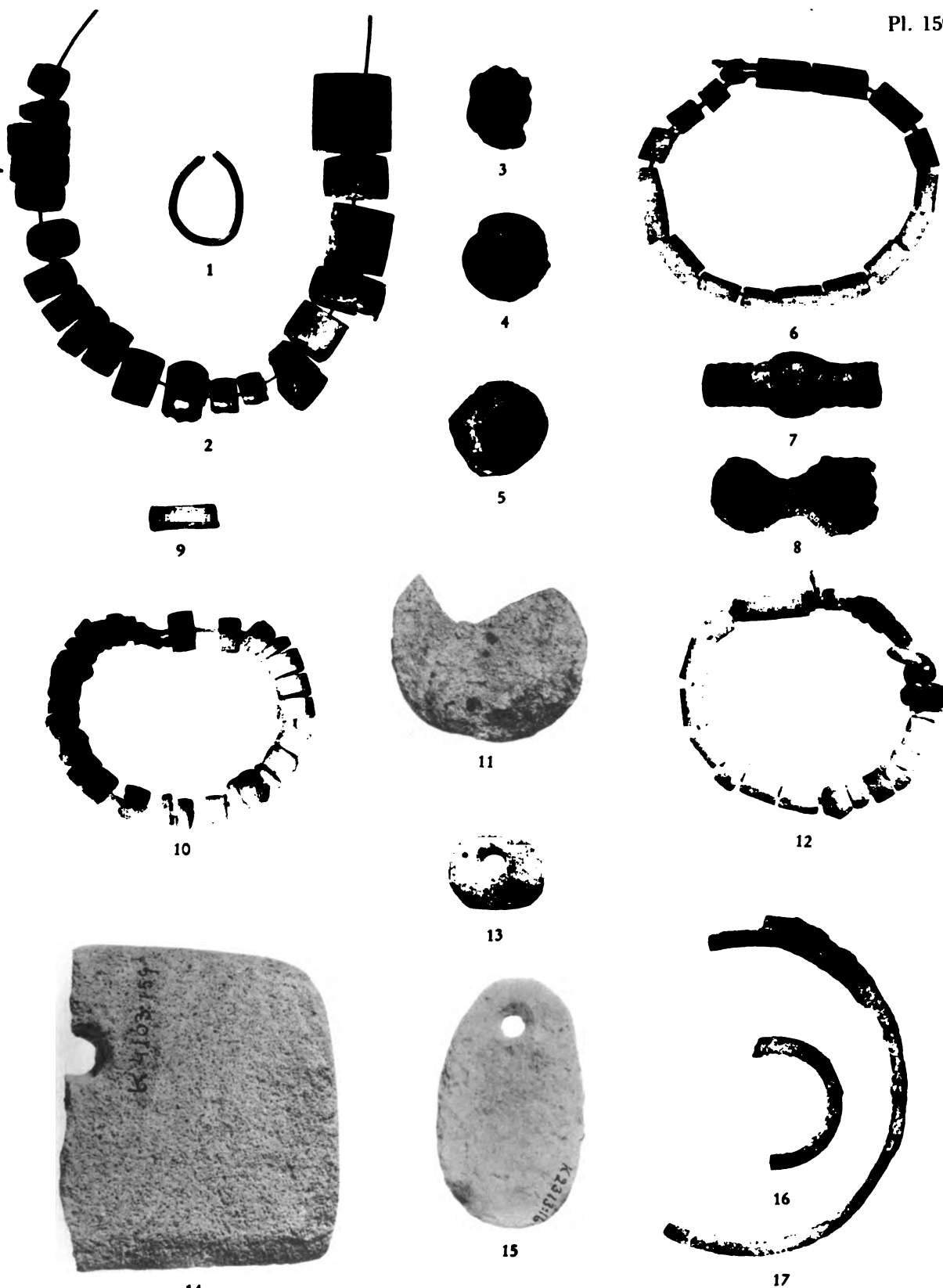


11



12

Sha Ching. Varia. 1. 7 = $\frac{1}{1}$ the rest = $\frac{1}{2}$.



Sha Ching. Varia. $\frac{1}{1}$.



1 a



1 b



2

Fig. 1. Sha Ching F. Fig. 2. Ordos bronze for comparison. $\frac{1}{4}$.



1



2

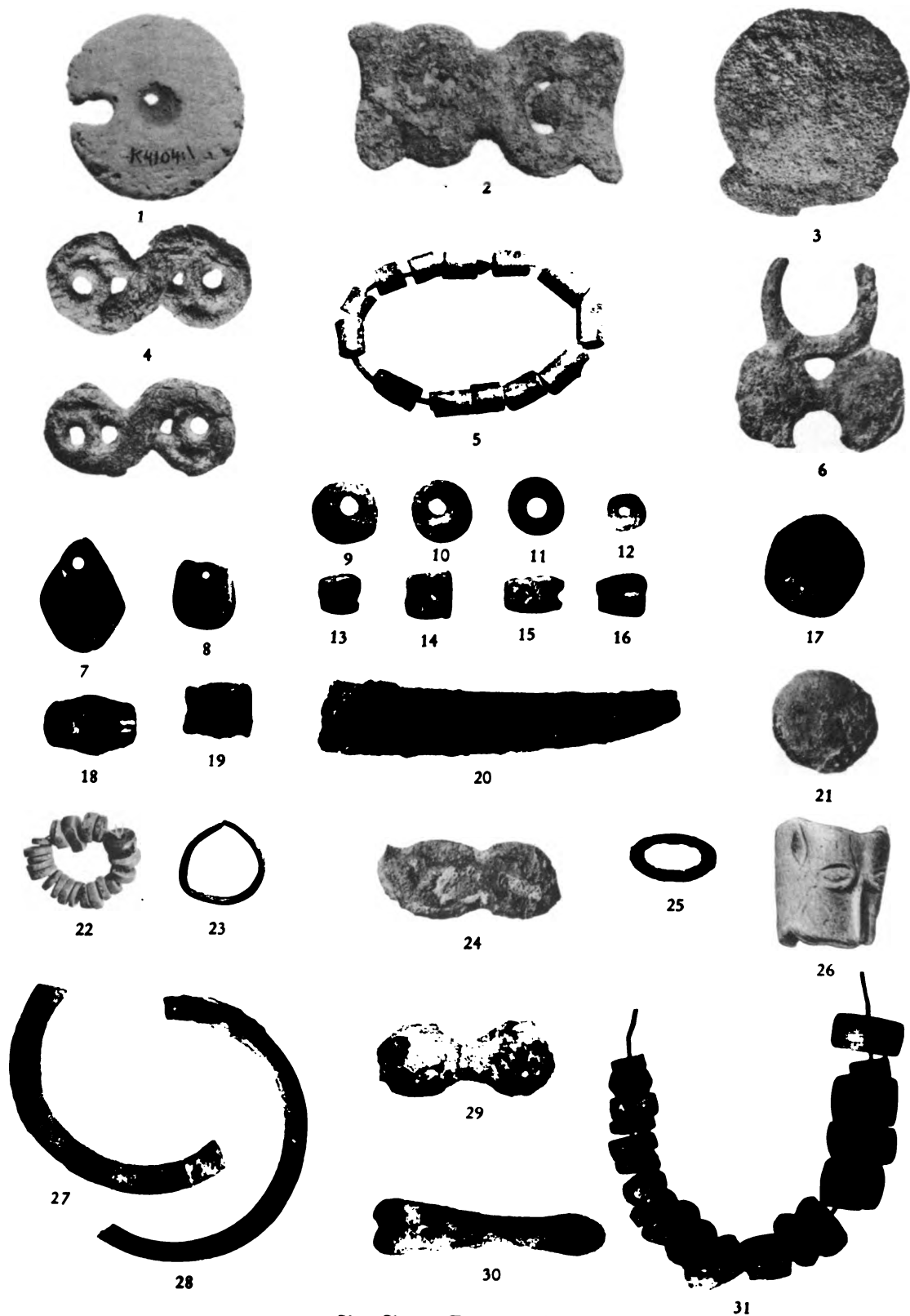


3



4

Sha Ching. E. 1/1.

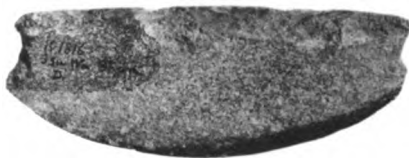


Sha Ching. E. 5 — 6 li. $\frac{1}{1}$.



1

1200 SHAK



2

300 MA SHAK



3



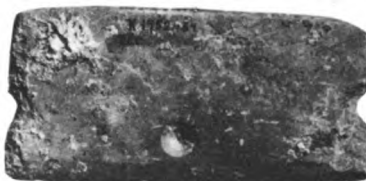
4

1111 SHAK



5

1111 SHAK



6

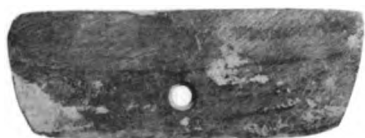
1111 SHAK



7

Stones knives. 1/2.

1111 SHAK



1
LO HAN T'ANG



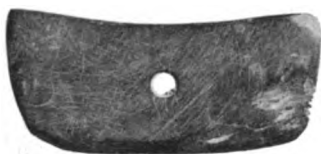
7
LO HAN T'ANG



2
1'



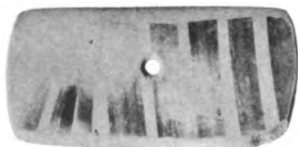
8
1'



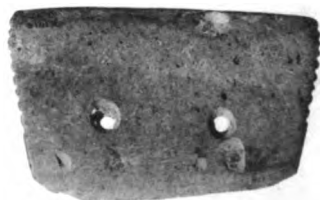
3
1'



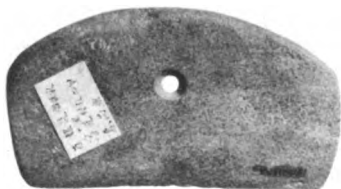
9
1'



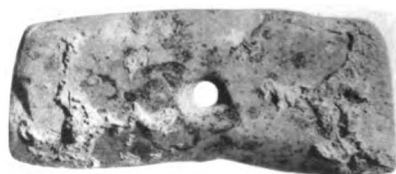
4
MA CHU YAO



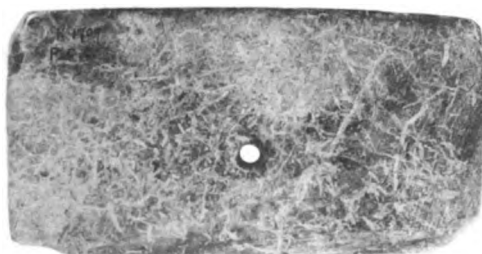
10
1'



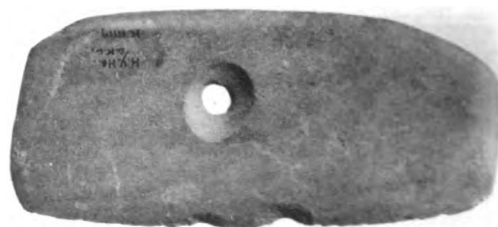
5



11
LO HAN T'ANG



6



12

Stone knives. All $\frac{1}{2}$ except 6 = $\frac{2}{3}$. CHU KU CHU



1
1/2 CHIN CHIN



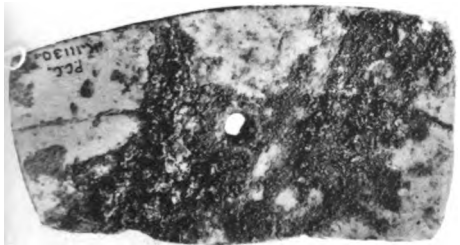
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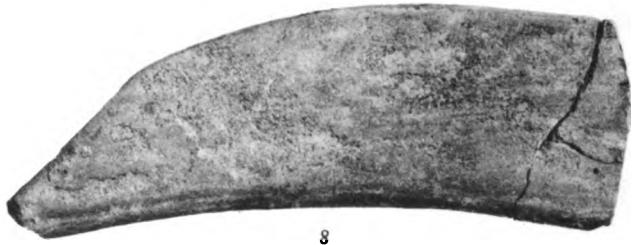
2
1/1



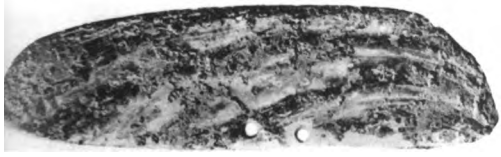
7



3
1/1



8
1/2 CHIN CHIN



4
CHIN CHIN



9
1/2 CHIN CHIN



5
1/1



10
1/2 CHIN CHIN

Stone knives. 2, 3 = 2/3, the rest 1/2.



1



2



3

Vessels with pointed bottom. Yang Shao age. 1, 3 = $\frac{1}{4}$, 2 = $\frac{1}{6}$.



1

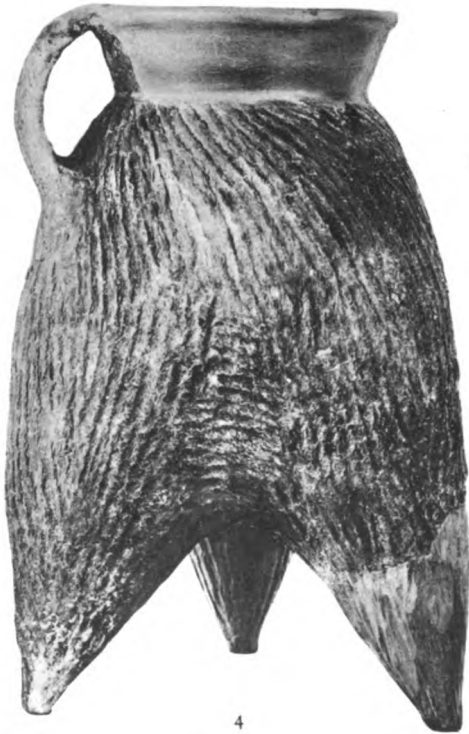


2

Pu Chao



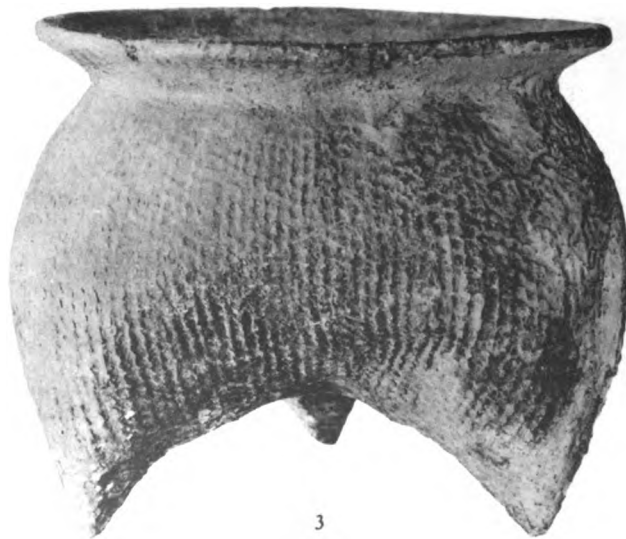
3



4

Yang Shao

Li tripods of Yang Shao age. 1,3 = $\frac{1}{2}$, 2,4 = $\frac{1}{3}$.



Li tripods. Probably Yin-Chou age. $\frac{1}{2}$.



1



2

Li tripods. 1/2.



1



2

Li tripods. $\frac{1}{3}$.



Li tripods. 1,2 = $\frac{1}{2}$, 3 = $\frac{1}{4}$.



1



2



3

Li tripods. 1/2.



1



2

Li tripods. Hsin Tien — Ssu Wa age. $\frac{1}{2}$.



1

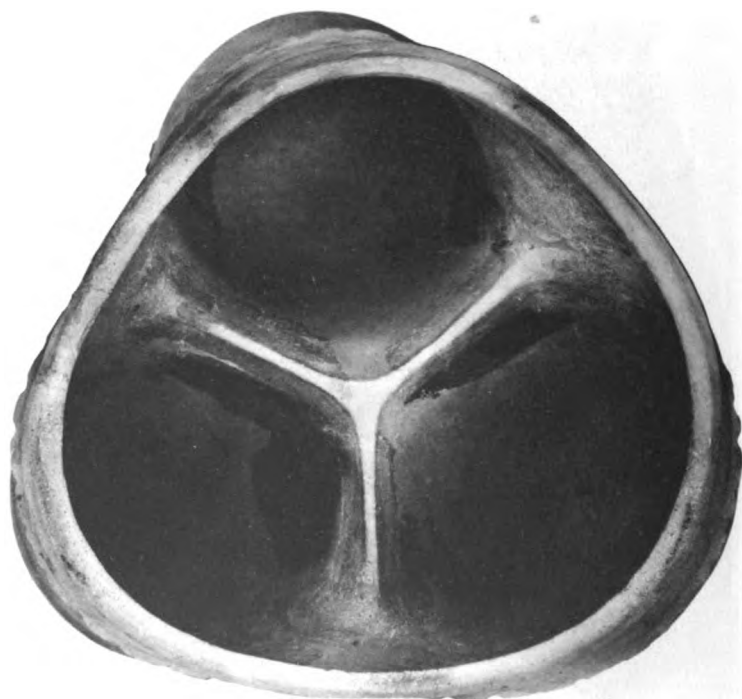
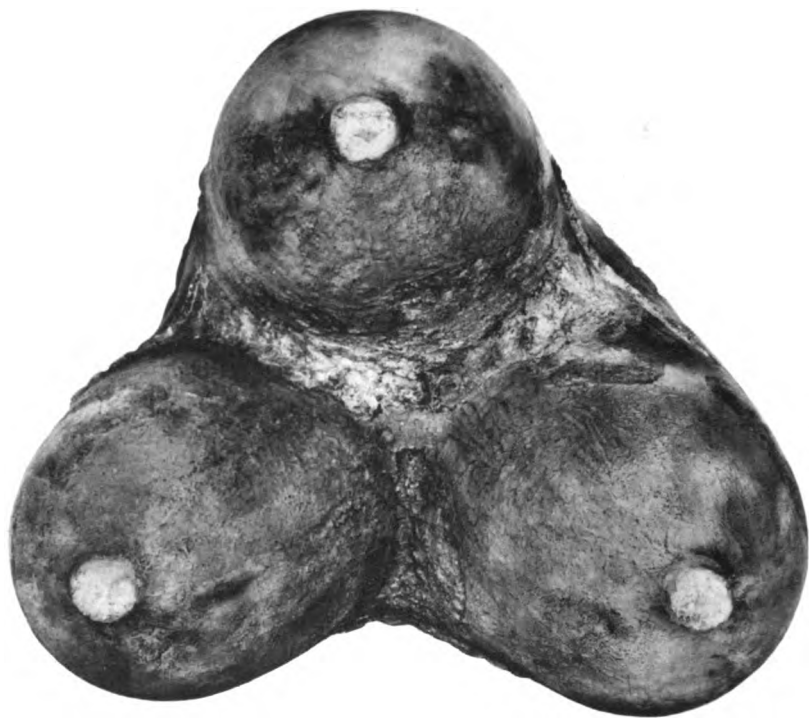


2

Li tripods. Hsin Tien -- Ssu Wa age. $\frac{1}{2}$.



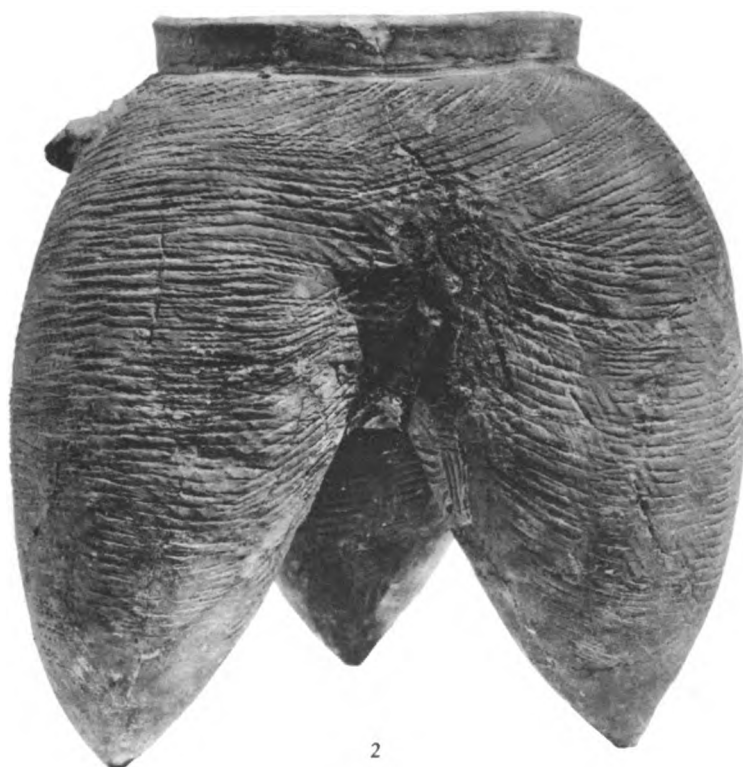
Li tripod. Sha Ching age. $\frac{1}{6}$.



Li tripod. Sha Ching age. $\frac{1}{6}$.



1



2

Li tripods. $\frac{1}{4}$.



1



2

Li-Ting tripods. Yang Shao age. $\frac{1}{3}$.



1



2

Li-Ting tripods. Yang Shao age. $\frac{1}{2}$.



1 a



1 b



2 a



2 b



2 c



2 d

Clay figurines. Pu Chao Chai. 1/1.



1 a



1 b



2 a



2 b



2 c



3

Pottery toy pieces. Yang Shao age. $\frac{1}{1}$.



1

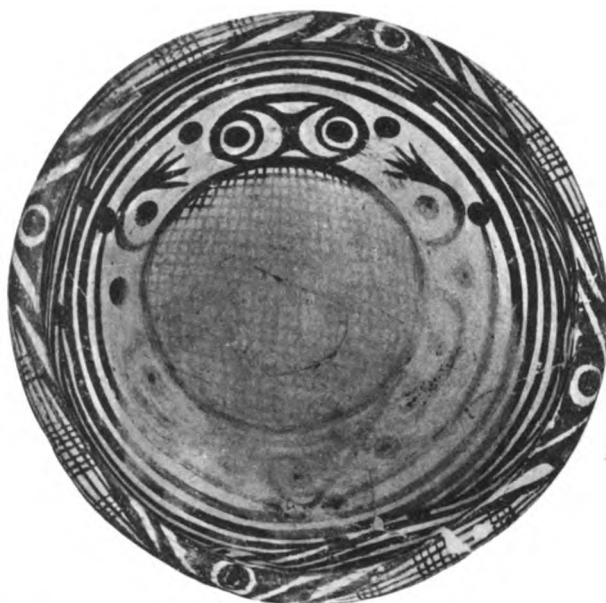


2 a



2 b

Anthropomorphic designs. Yang Shao age. 1 = $\frac{1}{3}$.



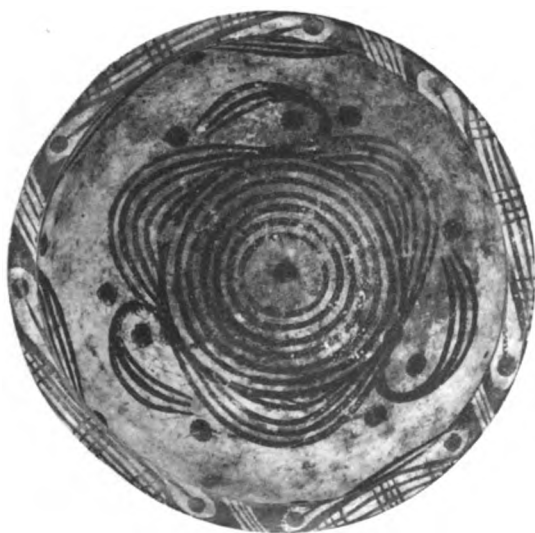
1 a



1 b



2 b



2 a

Animal and plant designs. Yang Shao age. 1 = 1₃ 2 = 1₄.



3



1



2

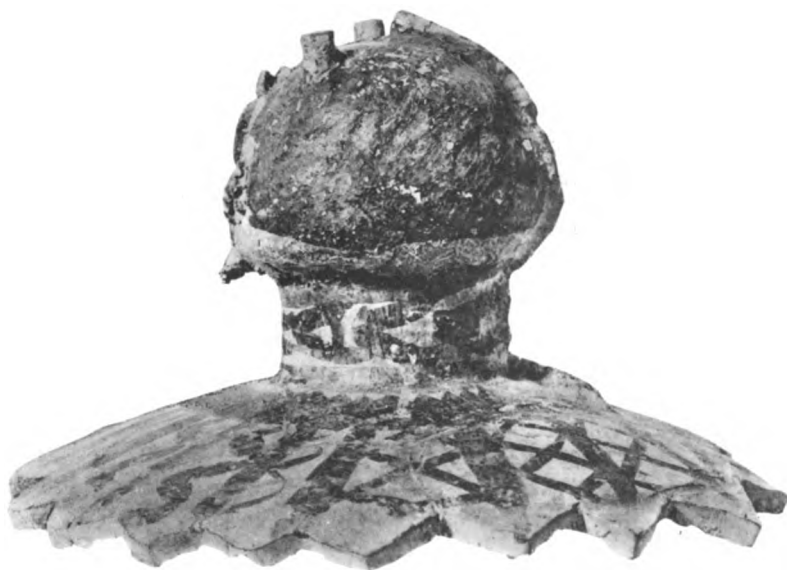
Animal and plant designs. Yang Shao age. 1, 2 = $\frac{1}{3}$, 3 = $\frac{1}{4}$.



Animal design. Yang Shao age.



Anthropomorphic designs. Yang Shao age, $\frac{1}{2}$.



Anthropomorphic designs. Yang Shao age.



Anthropomorphic designs. Yang Shao age. $\frac{1}{4}$.



1



2

Anthropomorphic designs. Yang Shao age. 1 = $\frac{1}{4}$.



1



2

Anthropomorphic designs. Ma Chang age. 13.



Anthropomorphic designs. Ma Chang age. 1/4.



5



4



3 a



3 b



1



2

Anthropomorphic designs. Ma Chang age. 1,2 = $\frac{1}{4}$ 3 = $\frac{1}{3}$ 4,5 = $\frac{1}{2}$.



Human and animal design. Ma Chang — Hsin Tien age. $\frac{1}{2}$.



Animal designs. 2 = $\frac{1}{3}$ 1. 3, 4 = $\frac{1}{4}$



Animal designs. $\frac{1}{4}$.



Human and animal figures. $\frac{1}{4}$.



1



2

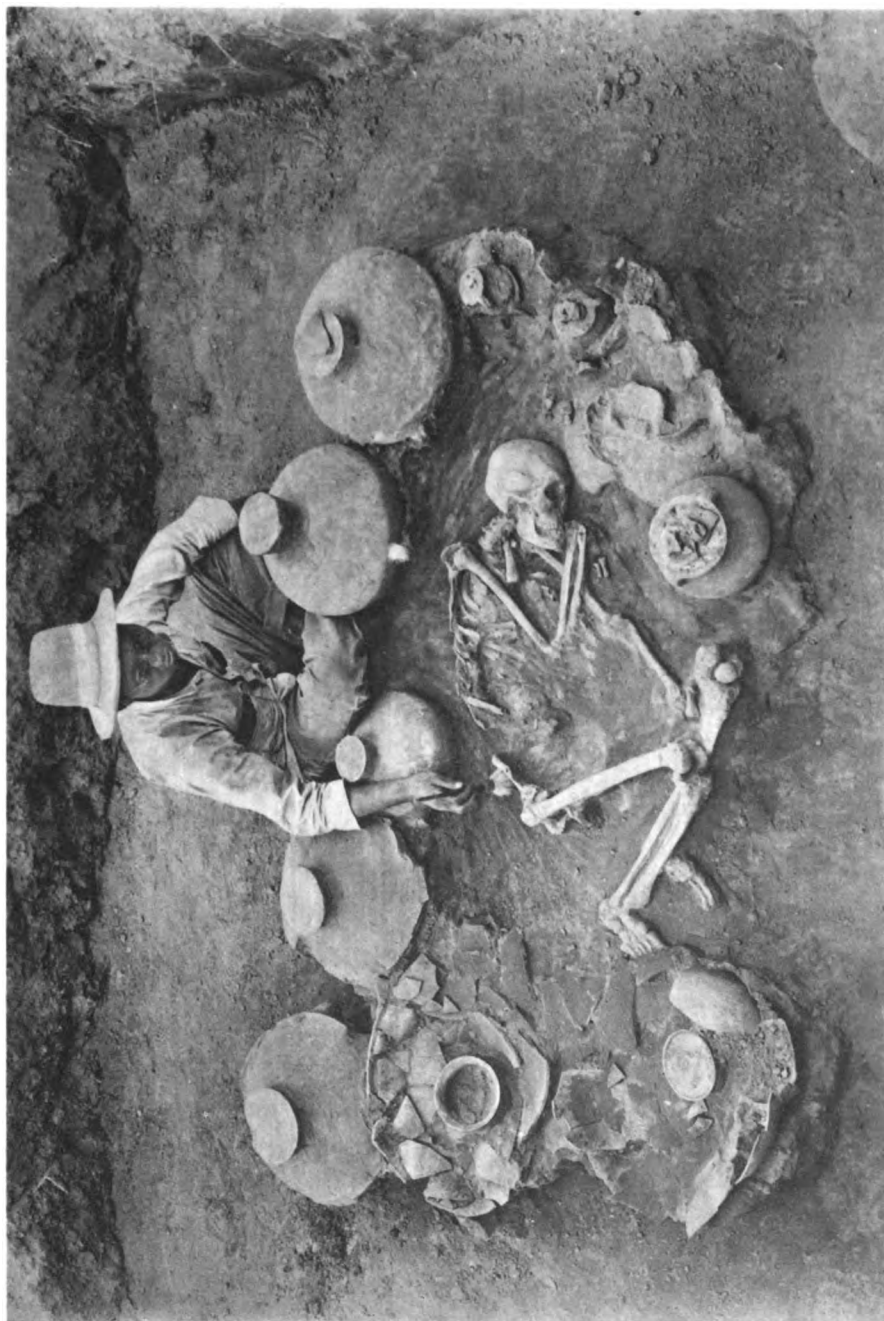
Human and animal figures.



1. Yang Shao Tsun. Burials of loc. V.



2. Hsin Tien A. Skel. 17 with Chang.



The Pien Chia Kou grave with Chuang.



3 b



3 a



2



1



4

Yang Shao Tsun. Loc. XII Furniture of grave Q. 1/2.

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